An Address
ON
THE ARTIFICIAL FEEDING OF INFANTS.

Delivered before the Hampstead Medical Society,

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GENTLEMEN,—The subject of this paper—the artificial feeding of infants—may appear to some of you, I am afraid, rather hackneyed. Indeed, there are few subjects, even in medical literature, about which more has been written, but there are few, also, I venture to think, in which so much of what has been written is of so little help in practice. To listen to some exponents of this theme one would be driven to believe that the artificial feeding of a young infant is a matter of such difficulty as almost to surpass the limits of human ingenuity and skill, or that it requires such a combination of profound chemical knowledge with an intimate acquaintance with the physiology of childhood as is hardly to be expected of anyone who is engaged in the ordinary practice of our profession. I am sure you will agree with me that this is a very exaggerated view of the difficulties of the subject. That there are babies the artificial feeding of whom taxes the ingenuity of the most experienced practitioner everyone will admit, but that these form the majority of the cases with which we have to deal everyone, I think, will deny. On the contrary, I am convinced that by attention to a few very simple rules we ought to be able to insure success in by far the larger number of the cases about which we are consulted. What these rules—in my judgment at least—are, I hope to be able to lay before you. I shall, I fear, have nothing very new to tell you, nothing which many of you do not know quite as well as I, and certainly no broad and easy road to successful infant-feeding to point out. I shall be satisfied, however, if I succeed in defining the great principles upon which success in this matter must depend, and in indicating some at least of the chief mistakes into which one is apt to fall. This will clear the ground for discussion. In the first place I think it is important that one should have some definite plan of campaign upon which to proceed when called upon to undertake the artificial feeding of an infant. I lay stress upon this point because I am convinced that the want of such a plan is a frequent cause of failure. One is apt to start off with a particular mixture, perhaps selected on no very definite grounds, and because the infant does not immediately do well on it to change in a week or two to something else, and when that also fails to plunge at once into the morass of patent foods in the vain hope that "something will be found to suit." Gentlemen, that way lies disaster. If we are to succeed at all it can only be by proceeding along definite lines, beginning with a mixture selected on rational grounds as suited to the digestive powers of the particular child with whom we have to deal, and if that fails after a proper trial—and the balance is the only arbiter of success—passing on to a mixture which we know to be more easily digested and from that, if need be, to one which is more easily digested still. Proceeding thus we are sure to succeed in the majority of our cases and if we fail then, at least, we have nothing to blame ourselves for; we have given "everything" a fair trial and our want of success is to be attributed to the feebleness of our patient's digestion and not to any unsuitability in the food.

To begin, then, at the beginning, everyone will agree that the basis of all our attempts at artificial feeding must be cow's milk. Now the drawback to cow's milk, and this cannot be too often repeated, is the indigestibility of its casein. This is due not only to the high percentage of casein in cow's milk, but also to its chemical form which is different from that of human milk. We can overcome the quantitative difficulty by diluting the milk, but this does not affect the chemical character of the casein, hence it is that no so-called "humanised" milk can ever be really as digestible as that of the child's mother. To what extent, then, are we to dilute the milk? I think it is best to start off in nearly all cases with a dilution of half-and-half. Barley-water has certain advantages as a diluent, but if there is any tendency to diarrhœa or scalding under the napkins lime-water is preferable. To be of any service, however, the lime-water must be used freely—the teaspoonful or two which mothers often add to the bottle is of no use. A mixture of equal quantities of cow's milk and water or other diluent contains almost the right proportions of proteid but is deficient, as compared with human milk, in sugar and fat. This, however, is easily remedied by the addition of one teaspoonful of sugar and one of cream[1] to every four ounces of the mixture. The sugar used should, if possible, be milk sugar. If that is unobtainable white sifted cane sugar may be used; brown sugar, being more fermentable, is to be avoided. The quantity of the mixture to be given at each feed cannot be very exactly laid down, as it varies not only with the age of the infant but with his weight and digestive power. It will fall somewhere between five and ten tablespoonfuls for all but the feeblest infants, but the exact amount may safely be left to the child's own choice. The intervals between feeds also vary, but of course the smaller the amount taken at each feed the shorter must the intervals be. As a rule the child should be fed every two hours for the first six weeks of his life, every two and a half hours for the next six weeks, and every three hours after that until he is weaned. One, or at most two, night feeds will also be required during the first six months. It is important that the infant should be accustomed from the outset to the observance of these intervals, for nothing is more certain to upset the digestion than too frequent or irregular feeding.

The question whether or not the milk should be boiled is one which has been much debated and into the pros and cons of which I cannot enter fully in the short time at my disposal. I would only say that the chief danger of unboiled milk is that it is more apt to produce vomiting and diarrhœa; the risk of tuberculosis is much more remote and has probably been greatly exaggerated. It follows from this that in hot weather at all events the milk should always be boiled, but it should not be kept boiling more than a minute or two, for there can be no doubt that the higher the temperature to which milk is exposed and the longer it is kept at it the more is the milk "denaturalised" and the greater is the risk of its producing scurvy.

The sort of bottle to be used is only second in importance to what one puts in it, for I believe I do not exaggerate when I say that more failures in infant-feeding are due to the use of an improper bottle than to any other single cause. The simpler the bottle used the better. The great thing is that it should be easy to clean in every part. The long tube variety you will, of course, reject at once, but I think that the screw-stopper bottles are but little better. The best is the simple boat-bottle with a plain rubber teat which fits on to the neck and which can be easily turned outside in and cleaned. Let me give you one other bit of advice about the teat: be sure that it has a large enough hole to let the milk out. Attention to this point is by no means superfluous. I have known many failures from neglect of it. Not long ago an infant was sent to me by a practitioner because weight was not being gained. On going into the history I found that the child had been fed with great care and apparently on the most approved mixtures and I thought I should have but little to suggest. On examining the teat, however, I found that the aperture in it was so small that the milk failed to drop when the bottle was inverted. After getting a new teat with a larger hole all went well. Again recently I saw amongst my out-patients at Great Ormond-street a baby, aged three months, who was being fed on the bottle. The child had no digestive disturbance but was losing weight at the rate of an ounce a week. Here, again, I found that the aperture in the teat was almost impervious and after it had been enlarged the weekly loss of weight was changed into a gain of six ounces. I mention these cases as typical of many which I have seen in which failure was due to a purely mechanical difficulty in sucking which is very apt to be overlooked. On the other hand, it is equally important that the aperture in the teat should not be too large, for in that case the infant is apt to gulp down the meal too quickly and to suffer in consequence from vomiting and colic. A suitable size of aperture is one which permits the milk to escape when the bottle is inverted at the rate of about one drop per second.

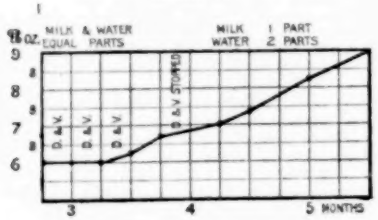
If the above mixture suits the child will gain five or six

[1] Assuming that it contains the proportion of fat met with in ordinary London cream—i.e., 40 per cent.

ounces in weight every week and there will be an absence of digestive disturbance such as colic or vomiting. It must not be supposed, however, that the existence of digestive disturbance by itself is a sufficient indication for changing the method of feeding. This is particularly true of vomiting. Many little babies have a trick, if one may so call it, of vomiting which does not affect their general progress. The fact is that they seem to swallow more food than they really require and to reject the excess. The balance is alone, therefore, the ultimate criterion of success or failure and I am firmly convinced that one cannot have any real satisfaction in the artificial feeding of babies unless one has each patient weighed once a week. It may be objected to this statement that gain in weight may be due merely to the laying on of superfluous fat and is not necessarily an indication of a healthy state of nutrition. To some extent this is true, but such unhealthy fatness is always accompanied by flabbiness and more or less of anæmia. So long as the flesh is firm, the skin "marbled," and the conjunctivæ and lips are of a good colour the rise in weight cannot deceive us.

Let us now take a case in which, although the mixture is prepared as above and there is no fault in the bottle, the child does not gain in weight. If there is no accompanying sign of indigestion this may be due simply to the mixture being too weak. This, however, is not likely to be the case unless the child is at least four months old or unless his stomach capacity is abnormally small. In such an event an increase in the proportion of milk in the mixture will set matters right. Far more commonly the loss in weight is accompanied by signs of indigestion, especially by colic. Should this happen, and especially if the stools contain undigested curds, one must give a weaker mixture. It sounds paradoxical, but it is true that a child may waste from getting too much—i.e., too strong food. The accompanying chart is an instance of such an occurrence (Chart I.). It represents the course of the weight in a child

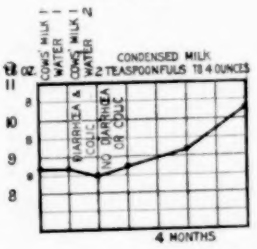
CHART I.



three months old who was brought to hospital for "wasting" and indigestion. The child was put first on a mixture of equal parts of milk and water, but this was too strong for his digestive powers and diarrhœa and vomiting continued whilst the weight remained stationary. On changing to a more dilute mixture, however (one of milk to two of water), the digestive disturbance disappeared and the weight rose rapidly.

Sometimes, however, one finds that even though the milk is given as dilute as 1 in 3 griping still results. Now it is not advisable, I think, to dilute the milk more than this unless in the case of very young infants. What, then, is to be done in such a case? I believe that the best plan is to have recourse to a more digestible form of food and that one finds in condensed milk. Why it is that the casein of condensed milk is more easily digested than that of ordinary cow's milk I do not know, but I think there can be no doubt that it is so. It may be that the casein undergoes some physical alteration in the process of condensation which makes it more easily dealt with by the stomach. I am aware that there are many people who discountenance the use of condensed milk in infant-feeding in any circumstances, but I can only say that in my hands it has often yielded the most satisfactory results. In order to insure success with it, however, and to obviate its undoubted dangers two conditions must be observed: (1) the deficiency of fat must be supplemented by some other means; and (2) its use must not be continued too long. The former indication can be met by the addition of a teaspoonful of cream to each bottle or if that is unobtainable by the administration of cod-liver oil. The second requirement is fulfilled by discontinuing the use of the milk, save in exceptional cases, by the sixth month at latest. If these precautions are neglected one runs a great risk of producing rickets or even scurvy. We should select a condensed milk which contains all the original fat, Nestlé's being quite suitable. It should be given, to start with at least, in the proportion of one teaspoonful to six tablespoonfuls of water (not barley-water) and with the addition of cream if possible. This quantity should be given at intervals of not more than two and a half hours. I know quite well that such a mixture seems chemically insufficient, but I can only say that in a very large number of cases I have seen the normal weekly gain in weight take place under its use. The explanation of such an apparent paradox may really lie in the very small amount of proteid required by young and feeble infants. It should never be forgotten that human milk does not contain more than 1½ per cent. of proteid and that it is this ingredient which in all our attempts at artificial feeding we are most apt to supply in amounts which exceed the digestive power of the child. The weight-curve of a case in which a successful result was obtained with condensed milk after ordinary milk had failed is shown in Chart II.

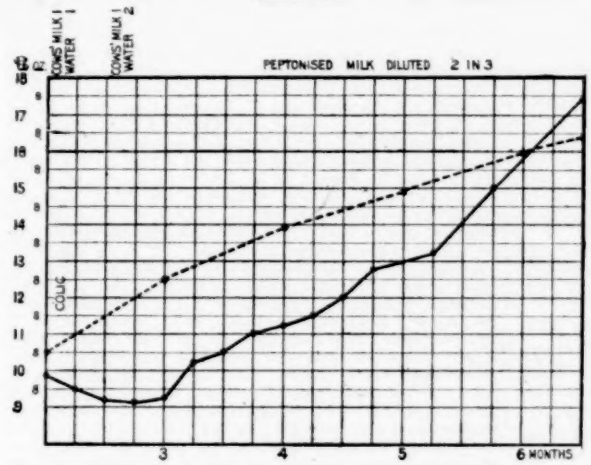
CHART II.



If, after a fair trial of condensed milk the weight still does not go up one must try peptonised milk, the easiest way of preparing which is by means of Fairchild's peptogenic powders. Often vomiting and colic will cease under the use of petonised milk when all other means have failed and coincidently the weight rises. I do not think one need be afraid of continuing the use of peptonised milk for months at a time if necessary. I have often been obliged to do this in cases in which a return to ordinary milk was immediately followed by indigestion and have always found that one was able altimately to give it up when the digestive power became stronger, as it always does long before the end of the first year. It is always well, however, to discontinue the use of peptonised milk gradually. One can begin for instance by peptonising for half an hour (longer than that I never recommend), then shorten the process to 20 minutes, then to ten minutes, and after that pass to unpeptonised milk. A good example of the benefits derived from feeding with peptonised milk is shown in Chart III. In this case a mixture of equal parts of milk and water was tried but with the result of producing colic and a drop in weight. It was thought that this might be due to the mixture being too strong for the child's digestive powers and accordingly another part of water was added. This had the effect of abolishing the colic but the weight still continued to go down. The child was then put on peptonised milk and immediately all went well and the weight ended by surpassing that of an average child of the same age.

I regard diluted cow's milk, condensed milk, and peptonised milk as the positive, comparative, and superlative of digestibility respectively and select the method to be used according to the digestive power of the particular child with whom one has to deal. Let us now assume that even peptonised milk, the highest in the scale of digestibility, has failed us and that the child obstinately refuses to gain weight. In such a case I always try the effect of grey powder before proceeding any further. How grey powder acts in such a case, whether it is locally by improving digestion and absorption and checking the growth of bacteria or more remotely by modifying in some way the process of assimilation in the liver or elsewhere, I do not know, but there can be no doubt that in many cases it seems positively to fatten the child. Chart IV. represents the weight-curve of such a case. It is that of a wasting child, three months of age, whose weight was rising very slowly if at all on a mixture of equal parts of milk and barley-water.

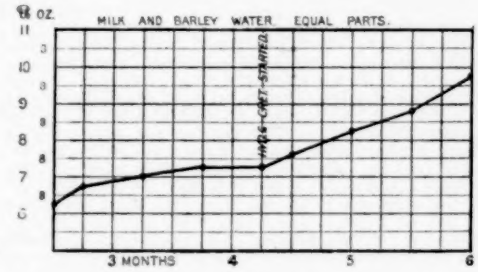
CHART III.



The dotted line represents the normal weight curve, the thick line the weight curve of the child under observation.

No sooner, however, was half a grain of grey powder given three times a day than the weight at once began to rise. There was no reason to suppose that this child was the subject of congenital syphilis. I do not think that one need be afraid of doing any harm with grey powder, notwithstanding the warning of Charles West, for it is rarely necessary to prolong its administration beyond a few weeks. Certainly I have never seen a case in which it appeared to produce the least degree of cachexia. Half a grain two or three times a day is a sufficient dose and in some cases the addition of a few grains of bicarbonate of soda seems to aid its action.

CHART IV.



If this resource also fails to effect an improvement one may conclude that he has to deal with a very difficult case. It is this residuum of cases which is apt to be the despair of the medical man. I believe myself that it is impossible to rear some of these by any artificial means whatever and that the only hope for the child lies in procuring a wet-nurse, failing which the wasting persists and ends in death. These are the cases of true marasmus. In others, again, it appears to be the casein of the cow's milk which is the source of difficulty owing to the inability of the child to digest it in any form. In such a case and, in the absence of a wet-nurse, in the first group also, we must eliminate casein from the diet. This can only be done by taking whey as the basis of the mixture. Now whey by itself is an insufficient food. It is too poor both in proteid and fat. These deficiences can be made good by the addition of cream in the proportion of one to six or eight of whey, whilst the proteid is supplemented by the use of white of egg or raw meat juice. By the skilful manipulation of these ingredients a suitable diet may perhaps be found. In a few cases I have succeeded when everything else has failed by giving one of the predigested infant foods made up with whey. In spite, however, of all one can do I believe that failure is inevitable in many cases of this sort. The patients die and one can find no reason for failure on examination of the organs after death. I shall say nothing of the use of patent foods, as complete substitutes for milk, because, as a matter of fact, I rarely employ them. If you cannot rear an infant by one or other of the methods described above I do not believe one can rear him by any artificial means whatever. Finally, I would say that there seems to be a group of cases in which the starch-digesting capacity of the child is out of proportion to his power of digesting milk and is developed at an unusually early age. There seems to be nothing in which the digestion of infants varies so much as in this capacity of dealing with starch. In spite of the statements in text-books that starch cannot be converted until teething has commenced I think that everyone here must have met instances in which it could be digested and made use of at quite an early age. In such cases I have often had the most gratifying results by adding to the diet some starchy food, such as a rusk or two or some pounded biscuit or baked flour, sometimes even as early as the fifth month. I believe that this experiment is always worth trying in a difficult case, for if it succeeds one can often carry the child on until a tooth is cut, after which the digestive power even for milk seems often to undergo spontaneous improvement.

In conclusion may I be allowed to recapitulate briefly the chief points which I have tried to bring before the society. 1. The first essential in the artificial feeding of infants is to have a definite plan upon which to go and to avoid haphazard procedures. 2. Diluted cow's milk, condensed milk, and peptonised milk may be regarded as the positive, comparative, and superlative of digestibility respectively and should be tried in that order until the digestive power of the child is suited, due regard being paid to the details of administration above laid down. 3. Periodic weighing of the child is the only test of the success or failure of the food selected. 4. In cases in which even peptonised milk fails to give good results great benefit often follows the administration of grey powder even in cases in which there is no reason to suspect a syphilitic taint. 5. In spite of all care in the use of the above methods there remains a residuum of cases in which progressive wasting persists. Many of these seem to be babies who are unable to digest the casein of cow's milk in any form. 6. In such a case one should try to procure a wet-nurse for the child, and failing that one must eliminate casein from the diet by making whey the basis of the feeding mixture. 7. The use of a patent food as the sole article of diet for a baby is rarely if ever necessary so long as cow's milk can be obtained either fresh or condensed. 8. If a child is unable to digest much cow's milk it is often worth while to try the effect of adding a little starchy food to the diet even at an early age, for inability to digest milk appears to be sometimes accompanied by an unusual capacity for the conversion of starch.

GREAT EASTERN RAILWAY. — ACCELERATED SERVICE TO DRESDEN AND VIENNA.—From Oct. 1st the service to Dresden and Vienna by the Harwich-Hook of Holland route will be greatly accelerated. Passengers leaving London, Liverpool-street Station, at 8.30 P.M., will be due to arrive at Dresden at 10.4 P.M. on the next day, instead of 12.55 P.M.; and at Vienna, *viâ* Dresden, at 7.35 A.M. on the second day after departure, instead of 2.40 P.M.

BURIAL AND FUNERAL REFORM.—Speaking at the parish cross at Westow, near York, on Sept. 13th, the Rev. F. Lawrence, honorary secretary of the Burial Reform Association, said that there was need of reform in the matter of funerals among both rich and poor. The poor were extravagant in their expenditure when they buried their dead, involving them in difficulties of long duration, while the rich often encouraged the false notion that they honoured their departed friends by the false pomp of costly funerals. The custom of burying dead bodies in strong coffins in vaults was to be deprecated because the sooner the mortal body returned to the earth the better. Burial should be in a perishable coffin in light soil where practicable.

A Clinical Lecture

ON

A CASE OF ABSCESS OF THE TEMPORO-SPHENOIDAL LOBE PRESENTING SYMPTOMS OF "AMNESIC APHASIA"; OPERATION; RECOVERY.

Delivered at the Leeds General Infirmary.

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GENTLEMEN,—The patient, a young officer, aged 26 years, had had a slight otorrhœa from childhood. Whilst serving with his regiment in South Africa a year ago his horse fell with him and he bruised and cut the left side of his face and suffered from a slight degree of concussion, but though he was laid up in an hotel for a day or two he did not go into hospital. Shortly before his illness began he returned to duty from leave and thought he took cold at a hockey match in which he played, because he suffered from headache on the way home. On Feb. 13th, 1903, two or three days later, he complained of general pains and there was some pyrexia. On the 15th he had a general convulsive seizure of some kind and for several days he had much pain in the head. On the 19th he had a temperature of 102° F. and intense pain over the forehead and vertex and he also vomited. Then his condition improved, but became worse on the 22nd and some foul pus was noticed to come away from the ear after it had been syringed. To this another improvment in his symptoms was attributed. On the 25th the patient was seen in consultation with Lieutenant-Colonel Clapp, R.A.M.C., and Mr. G. W. Blomfield of Pontefract. He was in bed but got up to be examined. The pulse was 60 and the temperature was 98°. His demeanour was apathetic but he expressed his willingness to assist in any way he could. There was a distinct pause before he began to answer questions put to him and if he ventured upon a descriptive sentence he would stop short here and there and repeat the last word he had uttered several times. In this way he would wait until a word he wanted came to him and then he would continue until another word failed him and led to the same manœuvre. He complained of great pain over the left anterior half of the head and at the vertex, where a blister had produced a boggy patch in the scalp. There was hyperæsthesia over the left parietal region which was very noticeable the next day when he was being prepared for the operation, and slight pressure in front of the auditory meatus at once elicited signs of pain. This tenderness on pressure in front of the ear and over the parietal region on the left side was in striking contrast to the absence of tenderness over the mastoid process. No sign or even acknowledgment of pain could be obtained either on tapping or exerting firm pressure over the mastoid cells. A watch could be heard at a distance of three inches and the tuning-fork test showed that there was no interference with the auditory nerve. The membrana tympani was obscured by pus. There was early optic neuritis in the left eye and the right disc also was thought to be affected, though the signs were not very definite. The visual fields were of normal size. There were no loss of the sense of smell on either side, no paralysis, no unsteadiness of gait, and no ankle clonus, but the knee-jerks were exaggerated. The patient had had very little sleep on account of the headache, but this was not continuously intense and during the intermissions he would get a few hours' rest.

A diagnosis of cerebral abscess secondary to ear disease was made and after carefully reviewing the symptoms we were convinced that the mischief was to be sought for in the temporo-sphenoidal lobe. It was decided to open up the mastoid antrum and middle ear as soon as possible and then to be guided by circumstances. The patient, therefore, was moved on the next day to a nursing home in Leeds and on Feb. 27th, with the assistance of Mr. Michael A. Teale, Dr. C. H. Moorhouse, and Mr. J. Ratcliffe, the complete mastoid or Stacke's operation was performed. As soon as the antrum was opened pus escaped. The middle ear and the antrum were then laid completely open into one hollow excavation and in order to give plenty of room for inspection and examination the bone was freely removed at the upper part of the hollow. On examining with a probe an aperture was now found in the roof of the antrum and through this the probe passed for quite two inches upwards, slightly backwards, and with a slight trend inwards. It met with no resistance and no attempt was made to measure the full extent of the cavity it had entered. As soon as it entered the cranium greenish-yellow pus escaped. The probe was left in the aperture and the base of the skull external to it was cut away until the dura mater of the middle fossa was exposed as far back as the orifice in which the probe lay. The dura mater did not pulsate and it did not bulge upwards noticeably into the gap. A pair of sinus forceps was now introduced alongside the probe and the track was dilated. Pus came away freely but slowly. It filled the excavation in the petrous bone over and over again as it continued to flow and to be mopped away. The abscess was several minutes emptying itself and it was estimated that from three to five ounces of matter must have escaped. Pulsation returned to the dura mater and a small drainage-tube was introduced for two inches into the abscess cavity and fixed in the post-auricular incision. No further disease was found in the tympanum. The ear was fastened in position by a few sutures and the hollow in the bone was packed with gauze through the enlarged meatus and from the incision. At the close of the operation the pulse had risen from 60 to 72. Subsequent progress was uneventful. The drainage-tube was not taken out and replaced till the tenth day, when the wound had become lined with granulations. On its withdrawal about a teaspoonful of foul pus escaped and from that time onward no more pus came away. The tube was gradually shortened and finally removed about the end of the third week. Headache never returned after the operation. His difficulty with words speedily disappeared, though for the first day or two he was conscious that it existed and caused him to make an occasional stupid mistake. He slept heavily for several days but in his waking intervals he was bright and showed none of his previous apathy. The optic neuritis remained stationary, or if anything became a little worse (certainly a hæmorrhage made its appearance in the third week), but after the tube was finally removed it rapidly subsided and had disappeared in another week.

When a person who has suffered from a long-standing otorrhœa develops a prolonged and intense headache upon the same side as the affected ear and the optic discs are found at the same time to be inflamed there is not much room for doubt that some intracranial complication has set in. This conclusion is only made more certain when there is a history, as in this case, of some general epileptiform seizure and of vomiting. But the difficulty comes in when a diagnosis has to be made as to the nature of the complication and the exact seat of the mischief. The life of the patient will in large measure depend upon the appreciation of facts that can easily be overlooked and upon an accurate interpretation of their meaning. Exploratory operations upon the brain are not like similar operations upon the abdomen. In the latter the surgeon is likely to relieve his patient, though he may be completely at fault in his diagnosis, but in the case of the brain, if an exploratory operation in one direction does not relieve it may lead to a somewhat speculative investigation in another and the second proceeding may prove as futile as the first. Such a result is apt to be as disastrous to the patient as it is disappointing to the surgeon.

The chief intracranial complications that are met with in middle-ear disease are meningitis, lateral sinus thrombosis, extradural abscess, and cerebral or cerebellar abscess. Now, in the present instance it was not difficult to rule out septic meningitis, because the illness had been slow and insidious in its onset, the temperature was subnormal instead of being considerably raised, there were no paralyses of the nerves at the base of the brain, and the symptoms had existed much too long for them to be mistaken for those produced by that fatal condition. Lateral sinus thrombosis also was speedily eliminated, for there had been no rigors and you will see from what I am going to say that the posterior fossa of the skull was apparently free from disease. But it was not so easy to distinguish between extradural and cerebral or cerebellar abscess. Let me here recall two points in the physical examination of the case. The hearing

power, as demonstrated by the tuning fork when placed upon the bone, was not in any way deteriorated, and there was no tenderness upon tapping the bone over the mastoid or upon firm pressure. The first fact showed that the labyrinth was not involved in the disease and the second that suppuration had not extended to the vertical mastoid cells. Now, it is from these two parts of the temporal bone that extension of inflammation usually takes place to the cerebellum and as the facts I have mentioned were associated with an absence of such symptoms as vertigo, staggering gait, and pain at the back of the head and the nape of the neck, which are frequently found when there is cerebellar disease, we felt on safe ground in concluding that the cerebellum was not at fault.

Next let me draw attention to the headache from which the patient suffered. This was situated on the same side as the ear trouble and over the anterior half of the cranium. It was not present at all over the right side of the head or over the occiput. It was particularly noticeable over the left parietal region and the slightest pressure in front of the auditory meatus over the trunk of the auriculo-temporal nerve at once made him wince. When the head was shaved the night before the operation the left parietal and temporal regions were found so hyperæsthetic that it was almost impossible to proceed, but there was no difficulty over the area supplied by the great and small occipital nerves It is perhaps unnecessary to mention that the Gasserian ganglion lies upon a groove near the apex of the petrous bone not far away from the roof of the middle ear and antrum and in the middle fossa of the skull in which the temporo-sphenoidal lobe is lodged. It is stated in some anatomical text-books[1] that filaments are given off from the ganglion to the dura mater and the headache and hyperæsthesia were no doubt a reflected nerve condition dependent upon irritation of these filaments either by the pressure of the abscess or by the involvement of the adjacent dura mater in the inflammation. It was of importance because it pointed to the middle fossa of the skull, but it still left it an open question whether the abscess was outside the dura mater or in the brain. It was quite conceivable that it might be present with either, for the dura mater might be involved in a cerebral abscess as it certainly would be in an extra dural one. The inference to be drawn from the escape of foul pus from the ear *after syringing* was equally indeterminate. There was one thing, however, that pointed strongly in the direction of brain abscess—viz., the difficulty the patient had with his speech. This suggested the implication in some way or other—no doubt in this instance by the pressure of an abscess—of a portion of the brain at a little distance from the ear, and it was this fact which, as soon as it was appreciated, led us to feel sure that we had to deal with an abscess in the temporo-sphenoidal lobe. The slow pulse, the subnormal temperature, and the apathetic demeanour were other valuable indications which helped to strengthen that conclusion.

Perhaps the most interesting feature of the case was this aphasia which was so useful in deciding the diagnosis. It did not readily attract attention, for the patient did not trouble to make many statements but contented himself with short and simple answers to the questions put to him. I have already described how when he did venture upon a sentence he would stop short at some word and would repeat it several times whilst he seemed to be trying to find the right word to come next. This would occur two or three times in the sentence. To me it appeared that he had forgotten the word and that his memory for words was at fault but when he became convalescent he explained exactly what the difficulty was that he had felt. He knew the word he wanted to use but would suddenly recognise that he was going to say a different one. The word he was on the point of uttering always had a certain likeness in sound to the one he meant to use but its meaning was very different. Sometimes the word he employed would be a "mixed up" word but still possessing a certain resemblance to the one intended. When he realised that he was going to say the wrong word he would wait and try to get the right one and after an interval it would come. The difficulty persisted for a short time after the operation and he gave me the following example. One day he was asking his nurse some question about an egg, and speaking quickly he called it "an echo." He at once recognised the error and asked her if she had noticed what a fool he had made of himself. For a long time he had a difficulty with certain words—usually long ones—such as "Pontefract" and "podophyllin." His method of trying to work up to the latter, which referred to some pills he wanted to indicate, was ingenious. He would think of "pod" and he could say it, then he would think of "dolphin" and he could say that, but it was quite beyond his powers to say "podophyllin." Yet it was evident that he knew the word but experienced a difficulty in enunciating it. This clear description by the patient suggests that though the ideas of the words which he wanted to use were clear enough they were apt to stray along wrong channels (possibly because the right ones were incommoded) to the centre for motor speech and consequently to be turned out in an unexpected and oftentimes an irrelevant form—the idea of one word stimulating the motor mechanism of another. It shows, too, that though the abscess from its size and situation must have invaded the immediate vicinity of the centre for auditory speech—viz., the posterior half of the first temporo-sphenoidal convolution—yet that centre, where the conception of words the knowledge of which has been acquired by hearing probably originates, was not really affected by it. And, further, it gives point to a statement by Gowers[2] that "verbal amnesia," or "amnesic aphasia," has been ascribed to interruption of the conducting paths between the auditory and motor centres of speech.[3]

One other symptom of more than ordinary interest was present in this case. The pus from the abscess in the brain leaked away in small quantities through the antrum and middle ear. This condition has been named "otorrhœa cerebralis." It is not often that an abscess of the brain finds relief in this way, but in those rare instances in which it does caries of the roof of the tympanum or of the antrum has in the first place led to the formation of a small aperture in the bone and it is through such an erosion that the pus finds its way out. The force of gravity has been invoked to explain why a temporo-sphenoidal abscess may discharge itself in this way, but though the weight of the abscess no doubt has its influence there is probably a better explanation. An aperture in the bony casement of the brain in such a case represents a point where the surface pressure is less than elsewhere. Pus always tends to find out the path of least resistance and consequently it might be expected that the abscess would be attracted to the erosion.

A large majority of abscesses in the brain occur in association with ear disease, but it is by no means easy to explain in any particular instance the exact method of their production. Of course the suppurative process may reach the brain directly by involving in turn each intervening structure, but in our case this was not so. Had the patient died in an early stage of the disease the abscess would have been found separated from the aural mischief by an intervening area of apparently healthy brain. How does the infection take place in such a case? I think we are justified in assuming that in the present instance, an erosion having formed in the roof of the antrum, the dura mater covering it became involved in the inflammation. Now it is probable that there lay in immediate relation with this infiltrated patch of the dura mater one of the small branches of the posterior cerebral artery which ramifies in the pia mater on the under surface of the temporo-sphenoidal lobe. By means of this artery infection could have been conveyed to the brain in one of two ways. Either its perivascular connective-tissue sheath, becoming infected from direct contact with the inflamed dura mater, could furnish a path for the micro-organisms to the interior of the brain, or, the vessel itself being involved, a septic thrombus might form in its interior and break down and lead to infective emboli in the terminations of the vessel in the white substance and so start a process from which an abscess would result. In some cases infection may take place through the veins. The superior petrosal sinus receives veins from the tympanic cavity and the roof of the tympanum on the one hand and from the temporo-sphenoidal lobe on the other. A thrombus originating in one of the former might

[1] Morris Quain, eighth edition, vol. i., p. 555.

[2] Gowers: Diseases of the Nervous System, vol. ii., p. 116.

[3] A letter which the patient wrote subsequently to the convulsive seizure showed nothing noticeable except one or two trivial mistakes in spelling near its close as if he were tired, but his difficulty in remembering, or rather in giving expression to the names of persons and places and things about the same period was a source of amusement to his brother officers, who, of course, did not realise its meaning.

reach and occlude the sinus and extend from it into some of the cerebral veins, and the organisms could then find their way to the brain along the clot. But here we may dismiss this mode of infection, for had a septic thrombus been present in the sinus septic emboli could hardly fail to have been distributed to other parts of the body and symptoms of pyæmia would have been present. These are not the only paths by which infection may reach the brain, but in cases like the one I have narrated they are the most important.[4]

It is well known that a certain class of brain abscess may exist without giving signs of its presence for long periods. This was probably so here. The symptoms which presented themselves in the fortnight before the operation possibly marked the culmination of a process which may have been set going by the injury producing concussion nearly a year before. The abscess was a chronic one or, as it is usually designated, "encapsuled," and it presented features very different to those of the acute variety. In acute abscess the purulent focus is surrounded by an area of œdematous and inflamed brain tissue in which the degree of inflammation gradually diminishes from the centre to the periphery. In such an abscess the pus is contained by softened and disintegrating brain. The chronic abscess, on the other hand, is surrounded by a capsule of inflammatory tissue which is undergoing, or has undergone, organisation. This capsule walls off the inclosed matter from the cerebral substance which remains in a more or less healthy condition around it.

The acuteness or the chronicity of an abscess depends to some extent upon the virulence of the infection and largely upon the ability of the living tissue to throw out a barrier capable of limiting the spread of the inflammation, whilst the widely different clinical aspects of the two forms are due to the conditions met with in the brain tissue inclosing them. The diffluent and inflamed area surrounding an acute abscess may vary considerably in extent and may even involve a very considerable portion of a hemisphere. Its tendency is to swell but its expansion is prevented by the incasing bone. The result is an increase of intracranial pressure which produces pain of an agonising character. If a portion of the skull is removed the dura mater bulges upwards into the aperture and if this is incised a protrusion of the brain occurs. And especially is this so if the gap in the dura mater is situated over a portion of the surface of the brain which has already begun to experience the softening effects of the centrifugal inflammation. Such softened brain easily moulds itself and the hernia cerebri often assumes a mushroom shape. The more extensive the area of brain substance that is inflamed the greater the intracranial pressure and the larger the hernia that would be likely to result. If in such a brain—ready as soon as opportunity offers to protrude—the abscess can be opened the pus may be forced out in a spurt to a considerable distance by the surrounding pressure upon the abscess cavity. Sometimes this pressure may force the matter to the surface without an incision, when by the removal of bone and incision of the dura mater a path of least resistance has been made. I have seen this occur and it is a very striking thing to watch.

How different is the behaviour of the encapsuled abscess. It occupies a space the brain substance corresponding to which has been completely destroyed. It is surrounded by normal brain tissue with little or no tendency to expand. The intracranial pressure is in many instances, therefore, not raised. The consequence is that it may be latent and unsuspected for weeks and months. When at last it leads to operation the bulging of the exposed dura mater is comparatively slight and when the abscess is opened instead of the pus spurting out it slowly oozes away. Finally, there is little or no tendency to the formation of cerebral hernia. It is imperative that such an abscess should be drained to give its cavity time to contract. Drainage is not absolutely necessary in some acute abscesses, for the cavity is entirely obliterated by the pressure and any attempt to drain would mean that the tube would lie imbedded in a mass of soft pulpy brain and keep up a certain amount of irritation. Of course, every abscess of the brain will not be in all respects like one of the two forms which I have sketched. They are to be regarded as types at opposite ends of the scale. But there are intermediate conditions in which certain of the features of the two types may become more or less blended.

[4] McEwen: Pyogenic Diseases of the Brain and Spinal Cord.

A CASE OF

ANEURYSM OF THE ABDOMINAL AORTA TREATED BY THE INTRODUCTION OF SILVER WIRE,

WITH A DESCRIPTION OF INSTRUMENTS INVENTED AND CONSTRUCTED BY MR. G. H. COLT TO FACILITATE THE INTRODUCTION OF WIRE INTO ANEURYSMS.

BY D'ARCY POWER, M.A., M.B. OXON., F.R.C.S. ENG.,

AND

G. H. COLT, B.A.

THE patient, a farrier, aged 29 years, was accustomed to perform heavy work in a stooping position. He had acquired syphilis at the age of 17 years, but had only been treated with mercury for a short time. Three and a half years ago he first noticed something beating in the right side of his abdomen and since that time he had been continuously under treatment in some hospital or infirmary. On five occasions he received injections of gelatin in the gluteal region, but they had not produced any marked change in the swelling, which increased steadily in size. On examination he was found to be a sallow, unhealthy, and anæmic man, addicted to morphia. His heart and lungs were reported to be normal. His pulse was regular, but poor in volume, and the radial arteries felt thickened. There was a throbbing area of skin in the epigastric and upper part of the umbilical region, which, at its highest point, seemed to be raised about three-quarters of an inch above the level of the surrounding skin. The throbbing was expansile in character and there was a well-marked bruit, which persisted when the patient was examined in the knee-elbow position. The pulse in the femoral arteries was equal and synchronous. The swelling was diagnosed as an abdominal aneurysm and more probably an aneurysm of the cœliac axis or of one of the branches than of the abdominal aorta. The sac of the aneurysm was very thin at one or two points and as the life of the patient seemed to be in danger it was decided to expose the sac and either ligature the artery from which the aneurysm arose or, if this were impracticable, fill the sac with silver wire. An incision was made down to the most prominent part of the swelling until an exposure of the sac showed that it would be hopeless to ligature the artery, as the sac was densely adherent to the surrounding structures. No coils of intestine lay between the parietal and visceral layers of the peritoneum in front of the aneurysm. It was determined, therefore, to wire the sac, and 80 inches of silver wire, with a clotting surface of 3·7 square inches, were rapidly introduced into the aneurysm by means of the new instrument (described later as instrument No. 1). The needle was then withdrawn, the wire was divided, its end was bent up and it was pushed into the sac, the hole being easily closed with a few Lembert's sutures. The operation lasted 30 minutes from the time the patient was placed upon the operating table until he was removed. The actual introduction of the wire only took two and a half minutes, but even this time might be shortened on a future occasion. The pulse during the operation was 88 and the respirations were 20. The operation was performed at 4 P.M. and the patient had a quiet night after a hypodermic injection of morphia at 10.30 P.M. On the following morning (Jan. 21st, 1903) his abdomen was soft, his respirations were 18, and his pulse-rate was 136. He complained of abdominal pain over the aneurysm and of pain in his back. A second hypodermic injection of morphia was given at 10 A.M. and the patient then slept quietly for several hours. At 2 P.M. the pulse was 136–144 and at 7 P.M. it was 146. He was ordered two drachms of milk-and-water every hour and he was kept under the influence of morphia. There was no evidence of gangrene nor did he complain of any numbness or tingling in the legs. At 9 A.M. on the 22nd the patient was complaining of pain in his back; his pulse was 160 and his temperature was 101° F. The wound was dressed; it looked healthy. The abdomen was tender, resonant, and showed impaired movement. The right side of the aneurysmal swelling was hard and did not pulsate, but there was distinct pulsation on the left side. The patient was now taking an ounce of milk-and-water every hour and

he was reported to have vomited twice, bringing up a small quantity of "coffee-ground" substance the first time and half an ounce of bile-stained fluid on the second occasion. He still complained of pain in his back; his pulse increased to 170 and he gradually sank, dying at 6.20 P.M. on the 22nd, about 50 hours after the operation.

The post-mortem examination showed that an aneurysm of the size and shape of a large orange projected forwards from the abdominal aorta between the layers of the transverse mesocolon. The sac was somewhat compressed laterally and was developed from the aorta itself, the dilated portion of the vessel being about three inches in length and extending downwards from just below the diaphragm. The great omentum immediately below the greater curvature of the stomach had been torn through at the time of the operation to reach the anterior surface of the sac. On cutting across the aorta just above the diaphragm a loop of silver wire seven inches long was found projecting into the arch of the aorta, but the rest of the wire was irregularly coiled within the sac of the aneurysm. All the other abdominal organs were healthy; the lungs were normal and the heart was free from disease except that the pericardium was adherent in places. The aneurysm and aorta were hardened in formalin before a section was made.

Hitherto, as far as we can ascertain, in treating aneurysm by the introduction of wire the surgeon has been content to puncture the anedrysm with a fine trocar and cannula; he has then withdrawn the trocar and forced the wire through the cannula, from which blood was often flowing freely. The amount of wire introduced in this manner has varied with the time at which the occurrence of kinking arrested its further progress. For this reason it has sometimes only been possible to introduce a few inches when it was intended to have put in several feet. The introduction of wire through a cannula is open to the further objection that a great deal of handling is necessary both by the surgeon and his assistants, so that it is difficult to insure that the wire last introduced shall be as sterile as that first used.

The factors in the construction of an instrument designed to overcome these difficulties are as follows:—1. The instrument must be self-contained—that is to say, it must carry the wire on a reel and have some form of fine cannula through which the wire is to pass. 2. It must remove the wire from the reel and force it through the cannula, yet without permitting it to kink. 3. It must not allow the wire to damage the sac or the surrounding tissues, although some force has to be used in the introduction of the wire; in other words, the wire must be made to coil up within the sac. 4. It must be simple in construction and so easy to work that no instrumental complication may occur during the actual operation and it must necessarily be capable of withstanding prolonged boiling. 5. It should, if possible, "snag"—that is to say, knot or roughen the wire, as coagulation is likely to be promoted by such roughening.

Instrument 1.—After a few preliminary experiments an instrument was constructed to meet these requirements. The instrument works on a principle which may be enunciated in the following terms. If what is known to the mechanical engineer as a milling tool be made to revolve at a distance less than the diameter of the wire employed from the inner surface of the dorsal wall of a hollow needle, the ventral wall of which has been cut away, the milling tool will grip the wire between itself and the needle and will wind it off a reel and drive it through the needle with a force only limited by the force at the disposal of the operator. It will at the same time "snag" or mill the wire (Instrument 1, Fig. 1). To carry out this principle a quarter-curved tubular needle was embedded for about two inches of its length in the substance of a brass carrier. A semicircular incision was then made down to it through the brass, so that the lumen of the needle was exposed. A milling tool was introduced at this spot to compress the wire with a steady grip as it passed through the needle, the pressure being made between the milling tool and the dorsal wall of the needle, and care was taken that no space should exist in which the wire could kink. The mounting of the needle was then bolted to the mounting which carried the milling tool, which was so geared up as to give the operator room to use the instrument without getting his hands too near the wound. A second hole was made into the tubular needle distal to the milling tool and along this a stilette is passed to block the point of the needle whilst it is being pushed into the sac of the aneurysm. The instrument is further provided with a handle by which to hold it and with a second handle which, when turned, causes the milling tool to revolve. The method of use is as follows. The aneurysm is punctured on the right-hand side, the stilette is withdrawn, and blood flowing through the needle shows that the point is lying in the sac. The handle to which the milling tool is geared up is then turned in the direction of the arrow engraved upon it and the wire is wound steadily and rapidly through the quarter-curved needle. The wire emerges into the aneurysm in a coil measuring one and five-eighths inches in diameter, the coil increasing spirally from right to left so as to produce a loosely formed spring. The wire is milled as it passes under the milling tool on the axial surface of the spiral, the coils of which are parallel and one-eighth of an inch apart. This arrangement of the coils is insured by slightly curving the needle in a plane at right angles to its axis and to the plane of the quarter curve. Five turns of the handle introduce two complete coils of the wire, the length of which is approximately ten inches and the clotting surface at least 0·46 square inch. It is evident, therefore, that although the point of the needle is out of sight a fairly correct estimate can be made of what is happening within the sac of the aneurysm. When a sufficient quantity of wire has been introduced the needle is withdrawn, the wire is cut and looped upon itself—to prevent the sharp end from injuring the sac—and is pushed into the aneurysm. The hole in the sac is afterwards closed by a few point sutures.

The use of this instrument in the case narrated at the beginning of the paper shows that although it worked smoothly it did not quite fulfil all the requirements of the case, for it allowed a loop of the wire to travel out of the sac and seven inches up the aorta. An examination of the specimen shows that this diverticulum of wire was not carried into the aorta by the blood-stream, because it has gone upwards or against the direction of the blood-flow. The majority of the coils, too, are firmly implanted in blood-clot in the sac of the aneurysm. The real explanation seems to be that whilst the wire was being introduced into the sac some of the coils became hampered in their revolution and the wire was driven out in a loop at one point. The coils of wire then ceased to revolve until the resistance to the further introduction of wire became so great that it could not be overcome by the milling tool, which slipped upon the wire instead of biting it and so brought to an end this part of the operation. The best method of preventing such an accident on another occasion would be to introduce the wire so that the coils are not all in one piece. This can be done by dividing the wire into sets of coils—a method which has the further advantage of diminishing the ever-increasing resistance to its introduction. It does not seem possible to make one length of wire push the previous length through the needle into the sac, partly because the wire is too fine, partly because it does not exactly fill the needle when it has been milled, and partly because it is inconvenient to feed a needle with detached lengths of wire. As a matter of experiment, when such an attempt is made the two sections either jam in the needle or the hinder piece of wire kinks. The only alternative, therefore, seems to be to cut the coils as they leave the eye of the needle, and this must be done without withdrawing the needle from the sac of the

FIG. 1.

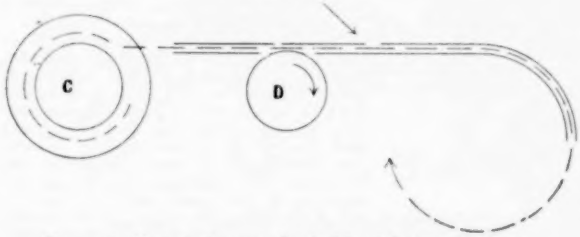
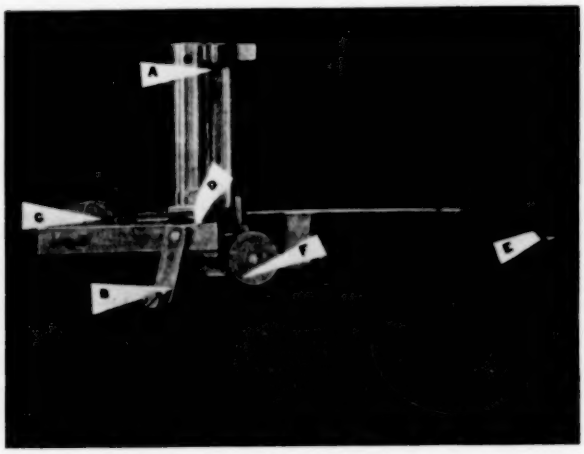


Diagram to illustrate the general principle of Instrument No. 1. C. Reel. D. Milling tool which rotates in the direction of its arrow. The interrupted line indicates the wire passing from the reel through the needle. The straight arrow points obliquely to the opening for the stilette.

aneurysm. The wire can be divided in several ways, but the method now to be described seems to be the simplest and most practical and was not decided upon until after the others had been tried.

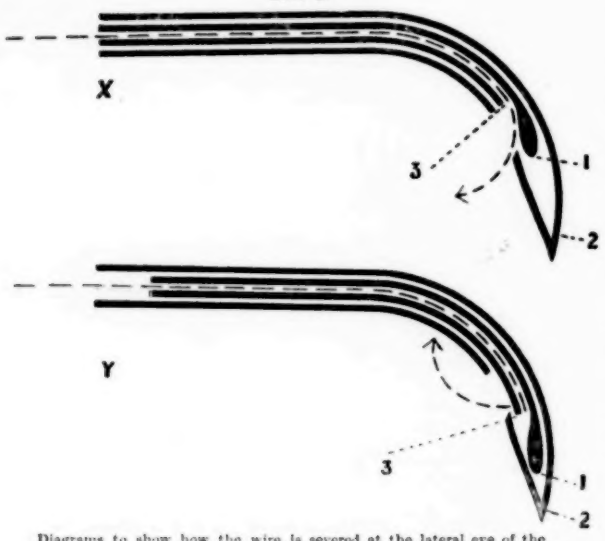
Instrument 2.—The second instrument (Fig. 2) differs in many important points from the first instrument. There are no gear wheels and the milling tool is driven direct. The needle is sufficiently long to remove the mechanism to a distance from the wound. Lastly, the instrument is able to take a thinner wire and a stilette is not required. The coils are divided by the following mechanism (Fig. 3): The hollow needle (X) along which the wire travels is encased in a second needle (X 2), which exactly fits it. The end of the inner needle is completely blocked up by a minute inclined plane made of steel (X 1 and Y 1), which is securely brazed in position and is so arranged that it faces the oncoming wire. A lateral opening is made through both needles at their distal ends and in such a manner that an eye is made with the depressed edges seen in the better kinds of Jacques's rubber catheters. When the two hollow needles are accurately adjusted (X) the lateral opening is continuous from the inside of the inner needle to the outside of the outer needle and through this opening the wire is directed by its impact on the inclined plane (X 1) which blocks the end of the inner needle. The tube of the inner needle is soft and flexible except at the eye, where it is tempered. The outer needle is quarter-curved, tempered throughout, and pointed. The inner needle adapts itself to the curve of the outer needle in all relative changes of position. The outer needle is attached to a rack and pinion placed close to the hand of the operator, and a movement of the pinion causes the outer needle to slide over the inner needle (Y). The relation of the lateral eye of the outer tube to the lateral eye of the inner tube is thus altered, and by means of a stop on the rackwork the operator knows the relative position of the two eyes even when they are hidden from his view. The alteration in the two parts of the eye is sufficient to divide the wire, which may thus be guillotined wherever and as often as the operator chooses. The pinion is reversed when the wire has been divided until the stop is encountered, when a fresh series of coils can be introduced into the sac of the aneurysm.

FIG. 2.



Flag labeled side view of instrument No. 2, about one-third natural size. Enlarged from a photograph taken by Dr. E. H. Hunt. A, Fixed handle for operator's left hand. B, Moveable handle for operator's right hand. C, Reel. D, The arch is the situation of the milling tool. E, Placed between the lateral eye of the outer needle and the coil of wire emitted. Near E the dorsal opening into the inner needle is seen. F, Stud by means of which the outer needle is caused to slide over the inner needle. A portion of the rackwork with its stop is seen between F and B.

FIG. 3.



Diagrams to show how the wire is severed at the lateral eye of the needle. 1, inclined plane at the end of the inner needle; 2, outer needle; and 3, cutting edge of the inner needle. In Fig. X the wire, represented by an interrupted line, after impinging on the inclined plane emerges as shown by the arrow. In Fig. Y the outer needle has been retracted over the inner and has severed the wire at 3.

The wire employed is No. 27 on the Standard Wire Gauge and is 0·0164 of an inch in diameter, or rather less than half a millimetre across. It is soft annealed silver wire and is supplied by any large firm of wire-drawers at 6*s.* an ounce of about 22 yards. It is flattened by passing under the milling tool and it is then 0·0215 of an inch in width and 0·0142 of an inch in thickness. It now has a slightly increased surface area, the surface area of the original wire being 5·152 square inches per length of 100 inches. It is exquisitely flexible and easily bends in the plane of the coil, though it is relatively rigid to stresses in any other plane. It is hardly possible to imagine it causing any damage inside an aneurysmal sac, and it is in the highest degree unlikely that it would pierce the wall. The diameter of a coil is three and a quarter inches, but a coil readily adapts itself to the wall of a cavity smaller than itself.

With this instrument ten turns of the handle introduce two complete coils of wire, or a length of 20 inches. When the instrument is used to wire a large aneurysm five turns of the handle should be made before the wire is guillotined, for if fewer turns are made less than a coil is introduced, and when small pieces of wire are allowed to sink in the sac of an aneurysm there is a danger that they may be carried out into the general blood-stream with unsatisfactory results. The instrument is undoubtedly an improvement on Instrument 1, though this improvement has been partly attained by addition and not by simplification as could have been desired. Even with Instrument 2 there is still a suspicion in the mind of the operator that all may not go quite satisfactorily at the operation and that a free end, rather than a loop, of the wire may enter the vessel from which the

aneurysm arises and possibly interfere with the action of the aortic valves. This accident has occurred when aneurysms have been wired by the usual method.[1] That this danger has been very greatly minimised in the present instrument few will deny, but no one will affirm that it is entirely absent. Experiments were therefore made in a different direction and resulted in the device now to be described.

Instrument 3.—The object of this device is to introduce an arrangement of wires, all connected together, through a fine cannula and when they are in position to cause them to expand and fit the sac. The first trial—viz., of the ideal arrangement represented in Fig. 4—was not satisfactory. The figure represents a spherical wire cage and it was proposed to compress it and pass it through a fine cannula, on emerging from which it would expand and come into contact with the walls of the sac. The spherical form is difficult to make and unsatisfactory in action and it is questionable whether it is as good as the actual device resorted to. This is represented in Fig. 5 and consists of a bunch of fine steel wires caught together with solder at their mid-points, each wire being curled over in a separate plane so that the whole arrangement fits

FIG. 4.

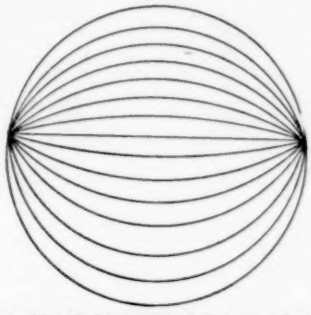


Diagram of the ideal arrangement of an expanding cage.

a sphere of three inches diameter, though it can be made of any size. In this particular size there are 30 wires, each five inches long and 0·0076 of an inch in diameter, and the total surface area presented for clotting is as nearly as

FIG. 5.

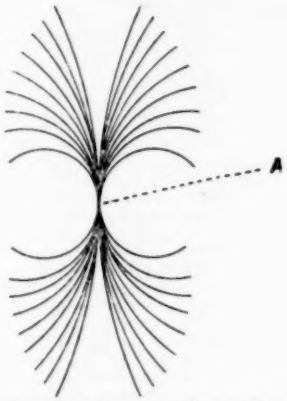
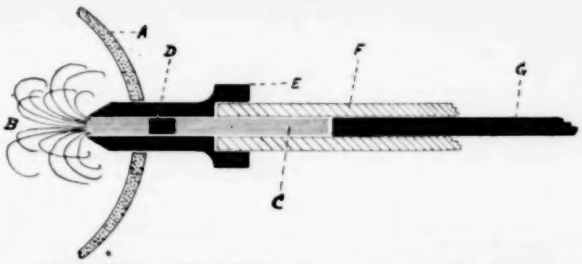


Diagram of the actual arrangement of an expanding cage. It can be compressed to its diameter at the central part (A), and after traversing a fine cannula will expand again.

possible three and a half square inches, which is equivalent to nearly 70 inches of the silver wire used in Instrument 2. When compressed the model is a cylinder five inches long and one-sixteenth of an inch in diameter. It is inserted

FIG. 6.



Diagrammatic section through Instrument 3 *in situ*. A, Sac of the aneurysm. B, The cage expanding. C, The cage compressed. D, Solder at the centre of the cage. F, Collar on the cannula. G, Ramrod. If C be considered absent, D to B would represent a "wisp" entering the sac.

into a fine tube or cartridge of the same internal diameter as the cannula employed to traverse the sac and is used by adapting the cartridge to a collar on the cannula and then pushing the cage through with a steel ramrod into the sac where it immediately expands. Fig. 6 represents this occurring *in situ*. One objection which suggests itself is that the second half of the cage does not expand until it is completely freed—that is to say, until the first half has moved onwards about two and a half inches from the end of the cannula. This might cause injury to the opposite wall of the sac by the half already introduced, but the danger can be prevented by using only a half cage or "wisp" which has already completely expanded when it is set free. This objection might have some weight in treating a small aneurysm, but having regard to the fact that the wires are fine and lissom and readily bend on contact with anything fairly solid, although stiff enough not to vibrate in the blood-current, it is not of great moment. In the case of a large sac it would not be necessary to substitute the wisp for the cage. The advantage of the cage, on the other hand, is that a foreign surface is introduced all round the walls, while a clotting surface is also maintained at the central portion of the sac. It is therefore probable that a firm even clot will form throughout. More than one cage can be introduced if it is thought desirable to increase the clotting surface, but there is some danger that the second cage may push the first one into an undesirable position, and when the process of clotting is once started in an aneurysm it is usually progressive. Moreover, in the cases so far reported the most successful seem to have been those in which a relatively short length of wire was inserted, as in the cases by Langton, Loreta, and Morse.

The advantages claimed for the instrument as a whole are that the apparatus is exceedingly simple and that the actual wiring of an aneurysm can be accomplished after a little preliminary practice in a very short time and with the minimum of trouble. In a suitable case it could be performed under cocaine, after freezing, or without any anæsthetic, as in tapping a hydrocele. Thus in five seconds from the time of puncturing the sac a sterile foreign body, presenting a clotting surface of relatively large value, can be gently placed in position and evenly distributed in the aneurysm with very slight risk of its injuring that structure or of its moving when once it is in position. When a wisp is used care would be taken to puncture the sac in a direction estimated, as far as is possible, to be towards the plane of its opening, because the wisp expands and curls back directly it begins to emerge from the cannula and there is therefore less danger of any of the wires projecting through the opening. When a cage is employed it will probably adapt itself better to the larger sac if the puncture is made in a direction parallel to the plane of the opening. It is also advantageous to arrange for closing the puncture wound before withdrawing the cannula. It is clear that from the time the cartridge replaces the trocar of the cannula the method of procedure will be nearly a bloodless one and it is not likely, therefore, to frighten a patient who is only under the influence of a local anæsthetic. Thus one of the chief objections[2] to performing the operation without an anæsthetic is to a great extent removed and the whole proceeding facilitated.

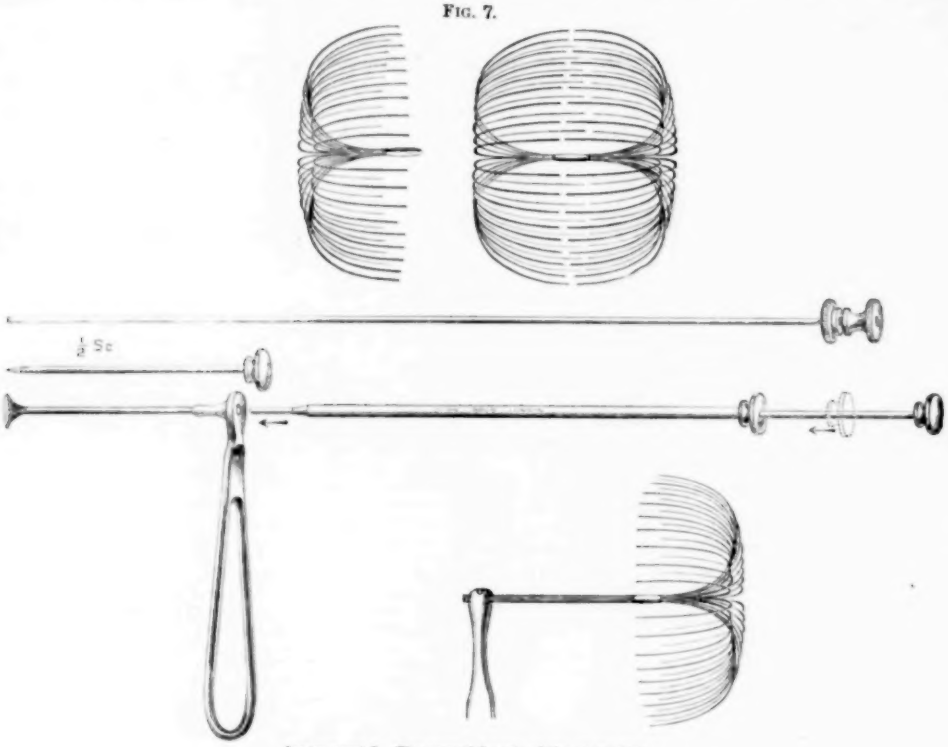
[1] Johns Hopkins Hospital Bulletin, November, 1900 (Reeve's case).

[2] Annals of Surgery, July to December, 1901 (De Forest Willard).

If desired electrolysis may be employed. For this purpose there is special provision made in the complete set of Instrument 3, which Messrs. Down Brothers, Limited, have made from our models (Fig. 7). The cannula is insulated and the current is led in through a terminal screw on the end of the ramrod connected with the positive pole of the electrical apparatus. A wisp having been placed (all but its hinder inch) in the sac the ramrod makes contact with it and the current is passed. Encouraging results have been reported when only a single wire was employed and it is hoped that still more satisfactory results will be obtained when electrolysis is used with an evenly distributed multiple wire. The conditions which obtained in Stewart's second case[2] approximated to this and the result was eminently satisfactory. The experiments recorded which show that electrolysis does start the process of clotting are not very numerous at present and need confirmation. The conditions of current distribution which appertain to the electrolysis of a nævus are so entirely different that an argument in favour of electrolysis in the present instance derived from such cases is not of great value. A wisp is probably better than a cage for the treatment by electrolysis, as there is less danger of the clot already formed on it becoming dislodged when it is finally pushed home. If steel or iron are considered unsuitable materials to employ, owing to their being readily corroded by the electrolytic action, wisps may be obtained which have been thinly gilded. Gold takes excellently on the fine wire and if left dull is possibly an acquisition to the method, even when electrolysis is not carried out, for the surface of the wire is made very finely granular. The gilding prevents the apparatus in stock from rusting, though this is not of much moment because all the parts are contained in a suitable aseptic case. It also prevents corrosion during the process of sterilisation.

The most successful cases in the literature of the subject have been those in which electrolysis has been carried out with a current of only 10 to 20 milliampères. Such a current when distributed by a wisp has a very small value at any given point or over any small area on the wire, and it takes over three days for the ungilded wisp when tried in normal saline solution to corrode completely through. Thus if the current be 20 milliampères and a five-inch wisp be employed the current distributed by one inch of the wire at any part is only 0·00013 of an ampère, and in one hour 0·00143 of a grain of iron will be oxidised from this inch of wire. The total quantity of iron removed from the whole surface of the wisp in one hour is one-fifth of a grain. Since a wisp weighs about 15 grains and the electrolytic action is equal at all points, the resistance of the wire being many times less than the resistance of the surrounding blood, the complete disintegration of a portion of the wire during the operation is exceedingly improbable. Whatever form of steel or iron wire is taken, this last number, *ceteris paribus*, holds good. Hunner[4] considers that within limits the wire most readily corroded is to be preferred.

FIG. 7.



Instrument 3. The essential parts of the apparatus.

For the present it seems better to treat an aneurysm without electrolysis in the first instance and then at a subsequent date to repeat the operation, if necessary, with electrolysis. In this manner and with increased experience it will become evident whether there is any great value in electrolysing the blood in the sac, or whether a reasonable hope of cure or benefit may be held out without electrolysis when the aneurysm is wired by a cage or wisp.

In conclusion, we give the directions sent out with each set of Instrument 3 by Messrs. Down Brothers, Limited, who are the authorised makers of the instrument.

DIRECTIONS FOR USING THE APPARATUS FOR WIRING ANEURYSMS.

Contents of the case.—One trocar and cannula two inches long; one trocar and cannula four inches long; one trocar and insulated cannula marked A, four inches long; four cartridges numbered one to four; two ramrods, one long and one short; one special ramrod with clamp for attaching conducting cord, for use with insulated cannula; one clip for folding the cage. One wisp, packing to two and a half inches containing 75 inches of wire, the surface area being one and three-quarter

[2] Brit. Med. Jour., 1897, p. 386.

[4] Johns Hopkins Hospital Bulletin, November, 1900.

square inches. One wisp, packing to three and a half inches containing 105 inches of wire, the surface area being two and a half square inches. One wisp, packing to five inches containing 150 inches of wire, the surface area being three and a half square inches. One cage, packing to five inches containing 150 inches of wire, the surface area being three and a half square inches.

The whole apparatus with the exception of the insulated cannula marked (A) can be boiled in soda solution. The wisps and cages should be boiled, unfolded, for half an hour. The hands of the assistant having been sterilised he should insert each cage and wisp into a cartridge as below and note their respective numbers. The loaded cartridges should then be boiled again for half an hour, after which they are ready for use. An estimate is made, as far as possible, before and during the operation of the size of the wisp or cage suitable, and then the corresponding cartridge is used. The aneurysm is punctured, the trocar withdrawn, and the cartridge fitted to the cannula. The ramrod is inserted and caused to push the cage or wisp gently home. The ramrod should be grasped close to the cartridge. If the ramrod should stick when the cage or wisp arrives at the junction of the cannula and the cartridge no force should be used, for the ramrod may get bent or suddenly slip home, but the cartridge should be rotated slightly when all will go smoothly. When the wisp is used it is recommended to puncture in a direction estimated as towards the plane of the opening of the sac into the vessel from which it arises; when a cage is employed, in a direction parallel to this plane. When the longer cannula is used the longer ramrod must also be used. To insert a wisp into the cartridge place the soldered end in the end of the cartridge which fits the cannula and manipulate the wisp into position, backwards, without allowing the wires to cross; that is to say, each wire should remain in its own plane and the soldered end be nearest the ramrod when the latter is in position. To insert a cage into the cartridge grasp the central portion of the cage with the clip provided and by drawing it towards the end fold up one end of the cage. Insert this in the studded end of the cartridge and then manipulate into position as for a wisp, finishing with a ramrod. When in position, a wisp or cage should just be visible at the end of the cartridge which fits the cannula. If electrolysis is to be employed use the cannula marked (A) and the ramrod provided with a terminal screw. Sterilise the cannula by soaking in carbolic lotion (1 in 20), not by boiling it, which would remove the insulation. The carbolic solution should enter the tube. The rest of the apparatus is prepared as before. Before puncturing dry the outside of the cannula with gauze to prevent any overflow of the current. Connect the positive pole of the electrical apparatus with the terminal on the ramrod and at the operation push the latter home to the edge of the gilding on it. When this is done one inch of the wisp is still in the cannula and makes contact with the terminal. When the electrolysis is over push the ramrod home. It is recommended that the wisp and not the cage be used when electrolysis is employed, for there is less danger when it is finally pushed home of the clot being dislodged from it. Note the size and clotting surface of the cage or wisp employed for future reference. A few minutes' examination of the apparatus is advisable before use and is better than a lengthy description. The interior of all tubes should be carefully dried after use with a pipe cleaner, the tubes warmed in a flame and dusted inside with powdered lime. The wisps and cages may be dried carefully, powdered with lime, and packed in the cartridges until required.

A CASE OF MALIGNANT DISEASE FOLLOWING SPLENIC ANÆMIA.

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THE following case being one of considerable clinical interest and presenting much difficulty in diagnosis during the earlier stages of illness, I think is worthy of being recorded.

The patient was a man, aged 56 years, whose family history was good, there being no history of malignant disease. He had suffered from chronic bronchitis for the last 12 years, but otherwise he had always been a healthy man. There was no history of alcoholism or of syphilis. He had had a severe attack of influenza (pulmonary type) in 1896 and was treated for gastric catarrh of some severity in March, 1901. About this time there were occasional dyspeptic attacks, probably owing to the bad condition of the teeth. The patient had suffered for the last 25 years from psoriasis, during which time he had been treated with preparations containing arsenic (according to his statement). He was apparently in good health until the onset of his illness, although his friends had remarked an unusual sallowness of complexion during the previous few months. On July 7th, 1901, he felt somewhat faint and unwell during the day and whilst at dinner in the evening he suddenly vomited a few ounces of dark-red blood. There was no pain whatsoever. He retired to bed and was ordered a milk diet. On the 8th, at 5 A.M., the hæmatemesis recurred, the vomit consisting of about three-quarters of a pint of dark-red blood mixed with food. There was no pain but he was rather collapsed. On the 9th the hæmatemesis again recurred, about half a pint of blood being vomited. He had been kept in bed since the first attack of hæmatemesis and restricted to a milk diet. An examination revealed no abnormal physical signs. There was melæna during the next 48 hours. The patient rapidly improved during the next fortnight, at the end of which time he got up and declared himself to be quite well. He had had no pain or discomfort whatever but was somewhat anæmic, the face being of slightly lemon-yellow tint. On the 30th he noticed that his stools were black and tarry-looking but no other symptoms were present. The melæna persisted for 48 hours. During this relapse he remained in bed for one week and was placed on a strict milk diet, after which he steadily improved but remained a little more anæmic than before. The case was regarded as one of duodenal ulcer. On August 21st the patient had another attack of hæmatemesis, about one pint of blood being vomited, and 30 hours afterwards, though contrary to orders, he left his bed to go to stool, as a result of which a large hæmatemesis occurred to the extent of about one and three-quarters of a pint and he was very much collapsed. Rectal feeding was now resorted to, which was followed by milk diet after eight days, and the patient remained in bed for eight weeks, during which time his symptoms were comparatively slight, there being no pain anywhere, but there was slight abdominal distension which caused him some discomfort. The anæmia was now very marked, the appetite was bad, and the general weakness was great. A physical examination showed slight abdominal distension with a small amount of free fluid in the abdomen; the spleen was not felt. There was some tenderness over the epigastrium, more particularly on the right.

A fortnight later (Sept. 4th) no ascites could be detected but the abdomen was still considerably distended. The anæmia was still more intense, the appetite was bad, and the general weakness was marked. The patient had been taking a mixture containing strychnine and iron. During the next few weeks he made no improvement, the anæmia was still more intense, and the general weakness, if anything, increased. On Oct. 25th he went to Hastings. He was then able to walk about 100 yards at a time but was extremely feeble. On Nov. 1st he complained of not feeling so well and at midnight had a bad attack of hæmatemesis, more than a pint of blood being vomited, unaccompanied by pain. A physical examination now showed considerable abdominal distension and slight epigastric tenderness as before, but the spleen could be distinctly felt descending one inch below the left costal margin and was very firm. The edge of the liver was not felt; there was no free fluid in the abdominal cavity and no enlarged glands were to be detected anywhere over the body. The skin had a lemon-yellow tint and was waxy-looking, the muscles generally being very soft and flabby.

There were no abnormal constituents in the urine. In an examination of the blood the differential count of the white cells was normal. No abnormal cells were seen. (A blood film only was taken.) The treatment consisted of rest in bed, a milk diet, and the administration of iron and arsenic in the following form: one-fortieth of a grain of arsenious acid, one grain of reduced iron, and one grain of sulphate of quinine, as a pill, three times a day. The case was now regarded as one of splenic anæmia.

There was considerable improvement during the next few days, but another attack of hæmatemesis occurred (about one pint) 14 days later, after which rectal feeding was again resorted to for eight days. The spleen was noticeably diminished in size after the hæmatemesis. The administration of iron and arsenic was continued and the patient remained in bed for ten weeks, after which time the anæmia was very much less, the appetite improved, and he was decidedly stronger. The spleen, however, remained very large, being now two inches below the costal margin, and there was occasional pain in the left side low down in the axilla. On Feb. 1st, 1902, the patient returned home remarkably improved, the anæmia having practically disappeared. The spleen was no smaller. On the 8th, after a drive of two hours in a cold wind, he complained of pain in the left side and a troublesome cough. An examination on the following day showed loud friction in the left axilla (in the eighth interspace) and much fine crackling crepitation in the left axilla and over the base of the left lung. There was profuse expectoration of frothy, pink-coloured, mucoid material, very tenacious, occasionally intermixed with small clots of blood of about the size of a pea. There were no abnormal physical signs over the right chest. The temperature was normal. The spleen was still enlarged, the edge

being felt two inches below the costal margin. On March 1st the cough had diminished, as also had the expectoration, but the character remained the same. The friction rub had disappeared. The temperature had remained normal throughout. Between March 18th and April 3rd the cough persisted and the expectoration was as before. The patient complained of pain on both sides of the chest, especially on movement. A nodular enlargement of the extremity of the eleventh rib on the right side was noticed which was very tender on pressure. There was similar tenderness on pressure over the eighth left rib in the mid-axillary line. No nodule was detected. The spleen was as before, the abdomen was rather distended, and the edge of the liver was just felt. During this time the iron and arsenic pills were discontinued. On April 7th the patient felt rather faint in the morning and complained of nausea and general bodily pains; the anæmia had become noticeable again. In the evening he passed a black, tarry stool. The iron and arsenic were resumed and the patient was put back on the milk diet and ordered absolute rest in bed. On the 9th the melæna continued. Hæmatemesis (one pint) recurred after a stool (the patient being in bed). The pulse in the morning was 94 per minute and the temperature was 98·6° F. The edge of the liver was felt half an inch below the costal margin. The spleen was as before. There was no glandular enlargement. The patient was ordered rectal feeding for eight days, to be followed by a milk diet; the arsenic and iron were continued. Melæna persisted till the 14th. The pulse had now become rapid, varying from 100 to 120. The respirations were 24 per minute and the temperature was normal. On the 16th the differential count of white corpuscles was normal. The blood film showed no abnormal blood cells but, however, considerable poikilocytosis and polychromatophilic degeneration of Ehrlich. A distinct nodule was detected over the eighth left rib in the mid-axillary line. On the 18th the pulse was 104, the respirations were 24, and the temperature was normal. The spleen was felt two inches below the costal margin. The abdomen was much distended and the patient complained of flatulence. The cough was still troublesome. Rhonchi were heard over both lungs scattered everywhere and there was much crepitation at both bases. The expectoration was white and frothy with occasional streaks of blood. By the 30th the edge of the liver was felt about one and a half inches below the costal margin. Two nodules of about the size of a small walnut could be distinctly made out over the anterior surface of the liver, which was rather tender on examination. The spleen was as before. The abdominal distension was now very considerable and there were signs of free fluid in the flanks. The cough was very troublesome. The anæmia was very profound but there was no trace of jaundice. The pulse was 110 and the temperature was 99·6°. The case now presented features suggestive of malignant disease, rapidly increasing weakness and emaciation, with anorexia, and nodular enlargement of the liver. The enlargement was more pronounced in the left lobe. There was also nodular thickening over certain ribs, probably of metastatic origin. No enlarged glands were to be detected anywhere. There were no symptoms by which one could localise the primary focus.

The further history of the case may be given shortly. The liver became enlarged and finally reached some four inches below the costal margin in the right nipple line, the edge of the liver being traced to the left across the epigastrium to the tenth rib; the nodules on its surface were easily apparent through the abdominal wall. The spleen retracted somewhat under the ribs but continued very firm and hard. The ascites was increased. The lung signs remained the same but the cough became very distressing. During the last four weeks of life there was irregular pyrexia varying between 99° and 102° and the pulse never fell below 108 per minute. The stools became very offensive, of a greenish colour, and contained much mucus, there being from two to three motions a day. Incontinence of fæces developed a fortnight before death, which occurred on June 23rd, during which time the patient was in a semi-comatose condition.

Permission to examine the thorax and the abdomen after death was obtained, with the following result. Both lungs were found to be emphysematous and the pleura was adherent over the outer aspect of the lower lobes of both the right and the left lungs. In the left apex was found a small nodule of growth, of a soft, semi-fluid consistence, hæmorrhagic, and about one inch in diameter. A similar but larger nodule was found in the upper lobe of the right lung. The mediastinal glands were very much enlarged and on section showed infiltration with the same soft neoplastic material. The fifth and eighth ribs on the left side and the ninth and eleventh ribs on the right side showed metastatic nodules about one and a half inches in diameter, the rib in each case being fractured in the centre of the growth. The heart was enlarged slightly, with strong pericardial adhesion over almost its whole surface, the muscle being rather soft and pale. There was no valvular disease. The abdomen was considerably distended and a few pints of clear, reddish-yellow fluid were removed from it. The liver was very much enlarged and irregular, the enlargement of the left lobe being very conspicuous. Over the anterior surface were scattered several projecting nodules of dark-red colour of about the size of a walnut and of soft consistence which on section were found to consist of hæmorrhagic, diffluent, semi fluid material. On section through the whole organ numerous such nodules of varying size were brought to view and in each case the neoplastic deposit was in a disintegrated semi-fluid condition. There was no involvement of the gall-bladder. The spleen was uniformly enlarged (eight inches in its long diameter), very firm, and was bound by strong adhesions to the under surface of the diaphragm and the left aspect of the stomach, where the adhesions were of a cartilaginous consistence. The capsule was very much thickened and covered, especially on its posterior surface, with much lymph exudation which was partially organised. On section there was no sign of neoplasm but the organ was very fibrous throughout and engorged with blood. The stomach was rather smaller than normal. The mucous membrane showed very extensive, probably recent, ecchymosis over a large part of the fundus corresponding to the area of the stomach adherent to the spleen. Over the pyloric region posteriorly was much dark pigmentation, probably the result of old ecchymosis. There was no ulceration of the mucous membrane in either the stomach or the duodenum. The walls of the stomach were thin and the mucous membrane was rather atrophied. There was no affection of any of the abdominal lymphatic glands; the right inguinal glands were slightly enlarged and infiltrated with the soft neoplastic material. There was nothing abnormal to note concerning the intestines, the pancreas, or the suprarenals. The kidneys were pale, slightly enlarged, and rather fatty; the capsule stripped easily. Owing to the very soft nature of the growth and the fact of its already being in a disintegrated condition microscopical examination was unsatisfactory. No definite conclusion as to the exact nature of the growth could be arrived at, though it was in all probability carcinomatous.

The above is a summary of the principal features of a case which is interesting both from the diagnostic and clinical point of view. It may be granted fairly, I think, that the malignant disease, wherever the primary focus lay, was not the primary cause of the illness, but that it supervened on splenic anæmia. Another point, which touches on some recent observations on the causation of malignant disease and its relation to arsenical administration, is the fact that the patient for some years previously had been treated with arsenic for psoriasis and with a very considerable amount of relief.

Grove Park, S.E.

A CASE OF SUBACUTE INDURATIVE PNEUMONIA.

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AND

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A GIRL, aged 17 years, was admitted into the City of London Hospital for Diseases of the Chest, Victoria-park, E., on Feb. 27th, 1900, under the care of Dr. T. Glover Lyon, complaining of pains in the right side of the chest, cough, expectoration, shortness of breath, and weakness. She had been ill for six weeks and the last four weeks of this time she had been in bed. Her previous health had

been good, excepting that she had had scarlet fever seven years and measles six years previously. Six weeks before admission she complained of pain in the right shoulder which lasted for about four days and then disappeared. Ten days later, however, it reappeared and she was advised by her medical attendant to go to bed, and this she did, not on account of the gravity of her symptoms, however, but "because her doctor told her to." She remained at home in bed for four weeks and as she steadily lost ground she went to the hospital and was admitted. During these four weeks the pain in the right side of the chest had been constant and it had been aggravated by coughing and by taking deep inspirations. During this time she had also suffered from cough accompanied by expectoration. She had only noticed that her breath was short for one week and during this week she had had profuse night sweats. Two weeks prior to admission she had coughed up about half a pint of blood and had been expectorating stained sputum ever since. She had been getting paler, losing flesh, eating and sleeping badly, and getting gradually weaker during the four weeks she was in bed at home.

On admission the patient was pale, looked ill, and had recently lost much flesh. The pulse was 96 and the temperature was 98·6° F. She had no dyspnœa as she lay in bed. She had some cough and was expectorating blood-stained sputum. On examination of the chest the expansion of the right side was found to be impaired and that of the left side was exaggerated. The results of the examination of the right lung were as follows. Anteriorly, over the upper three spaces, the percussion note was unimpaired, the breath sounds were weak, expiration was prolonged and equal to inspiration, and both vocal resonance and vocal fremitus were diminished. Below the third space there was dulness which became continuous with the hepatic dulness, the breath sounds were weak and bronchial, vocal resonance and vocal fremitus were absent, and there was whispering pectoriloquy. Posteriorly, in the supraspinous fossa, the percussion note was unimpaired, the breath sounds were a little weak, and expiration was prolonged and equal to inspiration. The vocal resonance and the vocal fremitus were normal. Below the spine of the scapula and in the axilla the percussion note was dull, the breath sounds were weak and amphoric, the vocal resonance and the vocal fremitus were diminished, and there were ægophony at the angle of the scapula and whispering pectoriloquy all over the base. The breath sounds were faintly audible down to the very base. There were no adventitious sounds throughout the chest. In the left lung, anteriorly and posteriorly, the percussion note was resonant, the breath sounds were exaggerated, the vocal resonance and the vocal fremitus were normal, and the entry at the base was good. The cardiac impulse was in the fourth space in the vertical nipple line and the heart sounds were clear at all the cardiac areas. Examination of the abdomen revealed nothing abnormal, the liver and the spleen were not palpable, and the urine was normal.

The case ran a downward course from the beginning. The patient died three months after her admission to hospital. During these three months the temperature continued irregularly intermittent, the evening temperature varying between 101° and 102·5°, while the morning temperature fell to 98° or 99°. The pulse-rate was always above 100 per minute and during the last month it ranged from 120 to 130 per minute. During the latter six weeks of this time diarrhœa was a prominent symptom, the patient having three or four loose motions daily.

With the exception of the free hæmoptysis which occurred two weeks before the patient went to the hospital there was not any free hæmorrhage from the lungs, but during the whole of the time that she was under observation at the hospital the sputum was stained with blood. The sputum was again and again examined for tubercle bacilli but with a negative result. The cough continued all the time and was constantly accompanied by blood-stained expectoration. During the first four weeks the expectoration was small in amount, averaging about one ounce per day, muco-purulent, and not offensive, but one day (March 30th) the patient suddenly brought up, after a paroxysm of coughing, a large quantity of very offensive, purulent, grey-coloured sputum. From this time onwards she continued to cough up daily large quantities of very offensive, often blood-stained sputum, averaging six ounces a day; on 14 days the sputum measured over ten ounces and on two occasions 14½ ounces were measured.

Owing to the belief that the patient was suffering from an empyema communicating with the right lung or from an abscess in the base of the lung, the right chest was explored with a needle on five occasions but without finding the source of the pus. Some time in April the sputum was noticed to be reddish-brown and closely to simulate so-called "liver pus," and an abscess of the liver communicating with the lung was suggested. On May 7th a sixth exploration of the right chest in the seventh space midway between the right vertical nipple line and the right edge of the sternum discovered exceedingly offensive, straw-yellow, watery pus. A portion of a rib was accordingly resected, a quantity of this highly offensive straw-coloured watery pus was evacuated, and the cavity was drained. No communication could be made out at the operation between this empyema cavity and the lung, nor, indeed, was such a communication anticipated, since the pus that was being expectorated, though it resembled the evacuated pus in point of its great offensiveness, differed in its other characteristics, for one was straw-coloured and watery and the other was reddish-brown and much thicker. As the patient did not improve after the draining of this empyema, but was fast losing ground, and as the "liver pus" continued to be expectorated in large quantities it was resolved to explore the liver and accordingly an exploratory laparotomy was performed on May 16th. At the operation the liver was found to be enlarged but in other respects it was quite healthy. The patient died from broncho-pneumonia of the hitherto apparently normal left lung on the third day, the laparotomy wound being healthy.

Necropsy.—At the post-mortem examination the body was found to be wasted. The abdominal wound was healthy, there being recent adhesions around it. The wound in the thorax was also healthy and here the two layers of the pleura were seen to be separated, forming a cavity the length of which from above downwards was about four or five inches. Everywhere else the visceral and parietal layers of the right pleura were adherent, the adhesions being very firm and the pleura being thickened throughout except at the apex of the upper lobe. It was impossible to separate the lung from the chest wall without tearing its substance, and the diaphragm, the diaphragmatic pleura, and the lung were firmly incorporated with one another. The visceral pleura at the site of the interlobar fissures was covered with yellow lymph. The left visceral pleura showed some recent inflammation on the outer surface of the lung rather below its middle but there were neither fluid nor adhesions on this side. There were a few fibrous adhesions between the parietal pericardium and the sternum with some excess of clear fluid in the pericardial cavity but no signs of recent inflammation. The peritoneum was normal. The right lung weighed 28½ ounces and the left weighed 20½ ounces. The right lung was markedly diminished in size and was non-crepitant. On section the upper lobe was pale and practically airless; it was homogeneous in appearance and its consistence was markedly increased. In the lower lobe, extending from about one and a half inches below the apex to the base and nearer the posterior than the anterior surface, was a large, irregularly shaped cavity, the walls of which contained fibrous tissue. In colour the walls were in some parts green, in other parts red, and the cavity contained some foul-smelling fluid and particles of necrosed lung tissue. The cavity was torn open on removing the lung. The rest of the lower lobe and the middle lobe were similar to the upper, but not of uniform colour and more friable, showing in places areas of thick pus of the size of a millet seed. The left lung was emphysematous as regards the upper lobe, and the lower lobe for the most part was non-crepitant. On section there was found to be some œdema of the upper part. The lower part, especially the posterior part of the lower lobe, exhibited light-coloured patches of broncho-pneumonia of the size of a pea, coalescing to form a solid mass which broke down easily and which was granular on the surface. There were on this side also some areas of thick pus of the size of a millet seed. This lung showed no obvious fibrosis. There was no dilatation of the bronchi in either lung. The heart weighed eight ounces, its cavities contained some ante-mortem clot, and its muscle was rather more friable than normal. The aorta and pulmonary artery were healthy. The liver weighed 70 ounces. It was very large, especially as regards the right lobe. Over a considerable area it was firmly adherent to the diaphragm. On section it was pale and markedly friable. The spleen weighed seven and a half ounces and was found on section to be firmer and more brittle than normal. The kidneys each weighed six and a

half ounces and were on section found to be rather more friable than normal. The suprarenal capsules and the pancreas were normal, as was also the large intestine. The small intestine, especially the ileum, showed marked congestion of the mucous membrane. In the right broad ligament was a cyst of the size of a large cherry. There was nowhere any evidence of tuberculosis.

Microscopical examination.—Sections of the lungs stained with carbol-fuchsin and methylene blue failed to reveal the presence of tubercle bacilli. Sections were made from the centre of the upper lobe of the right lung and from the left lung. The left lung showed distinct fibrosis, although there were no naked-eye signs of this, but the process was seen to be much less advanced on this side than on the right. In the sections from both lungs the alveoli were in places seen to contain a mass of coarsely granular material with many nuclei, sometimes connected with the wall of the alveolus by a band of connective tissue. In places this central plug was evidently becoming converted into fibrous tissue. The walls of the alveoli were also in places seen to be thickened. In other parts the cavities of the alveoli were completely obliterated by fibrous tissue, indicating a more advanced stage of the process, this being observed more especially in the right lung. Besides the above changes there was evidence of fibrous thickening of the interstitial tissue of the right lung.

The rarity of subacute indurative pneumonia is our reason for publishing in detail this case. Whether this rarity is more apparent than real it is difficult to say, for it is conceivable that many actual examples of this condition occur but do not come to the post-mortem table and so are returned as cases of pulmonary tuberculosis, bronchiectasis, abscess of lungs, gangrene of lung, or as unresolved pneumonia. Although we have to confess that we did not diagnose this case during life, but thought we were dealing either with an empyema which we could not localise and which had burst into the lung or else with an abscess of the lung of unexplained origin, nevertheless, looking back on the case with the light thrown on it by the post mortem examination we find that many of the points that clinically distinguish this subacute form of pneumonia from other conditions were present in a typical manner. The onset, for example, though sudden, was not the abrupt onset of acute pneumonia. There was no initial rigor. The onset was marked by sharp pain in the side which was sufficiently severe for the patient to call in a medical man, but for which she did not take to bed for a full fortnight, and then only "because the doctor told her to" and not because she was feeling too ill to be up and about. This brings out another feature of the case—viz., the fact that the illness immediately following the onset had not the gravity of an acute pneumonia, by which a patient is generally compelled to take to bed from the first. When the patient first came under our observation, six weeks it will be remembered after the beginning of her illness, she presented the physical signs of a cavity at the right base, and we then inclined to a diagnosis of basal pulmonary tuberculosis. This suggestion was strengthened by the occurrence of hæmoptysis early in the case and by the sputum being constantly blood-stained later. Repeated examinations of the sputum failed, however, to reveal tubercle bacilli, and we consequently put pulmonary tuberculosis out of court.

The sudden change which occurred in the character and quantity of the sputum on March 30th (ten weeks after the beginning of the illness) made us, from that day on, strongly incline towards the diagnosis of a deep-seated empyema bursting into the lung. For before this day the sputum was small in amount, muco-purulent, and not offensive. And then it suddenly became abundant, purulent, and fœtid in character. Subsequent events proved this change to be due to the emptying of a gangrenous cavity in the lower lobe of the right lung.

The progressively downward course of the case from the very first, and the fatal termination in gangrene of the lung after an illness of months only (the entire duration of the case was four and a half months), are characteristic. The diarrhœa of the last six weeks is also not an infrequent symptom. The small empyema that was evacuated on May 7th (only 11 days before death) was in our opinion secondary to the septic condition of the lung, and must be looked upon as a complication of the case, and one of not very common occurrence, since, as a rule, in these cases the pleural cavity becomes obliterated at any early period by fibrous adhesions.

The post-mortem examination revealed a large gangrenous cavity in the right lung, with secondary broncho-pneumonia; and the naked-eye changes generally agreed with those characteristic of subacute indurative pneumonia. This was confirmed by microscopical examination of sections of the lungs, the left showing the process in an early stage. This examination showed: (1) the absence of tubercle bacilli; and (2) the fact of the conversion of the contents of the alveoli into fibrous plugs.

We wish to thank Dr. Glover Lyon for permission to publish this case.

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ON THE OCCURRENCE AND SIGNIFICANCE OF CUTANEOUS HYPERALGESIA IN APPENDICITIS.

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VERY little attention seems to have been paid by surgeons to the subject of cutaneous tenderness in appendicitis and in the more recent text-books of surgery and monographs on appendicitis no mention is made of it. Head[1] and Mackenzie[2] independently in 1892 first drew attention to the subject of cutaneous hyperalgesia in visceral disease. In these articles no special attention is paid to its occurrence in appendicitis, but Head mentions that in affections of the intestine down to the upper part of the rectum superficial tenderness may appear in the ninth, tenth, and eleventh dorsal segmental areas. In the same paper Head quotes a case showing the absence of this hyperalgesia in perforative appendicitis and he has taught for some years (although I cannot find definite reference to it in any of his published works) that this superficial tenderness, if present, disappears on perforation of the appendix. In the third edition of Quain's "Dictionary of Medicine" Head in his article on Pain has given a later account of the subject but has made no special reference to the appendix. In the ten years intervening between Head's two papers I can find in the literature no mention of the subject.

In December, 1902, Müller read a paper at the Freie Vereinigung der Chirurgen Berlins on Head's Areas in Surgical Abdominal Disease.[3] In this paper he mentions "that he has found hyperalgesia in early cases of appendicitis with tolerable frequency, this hyperalgesia usually appearing in the neighbourhood of McBurney's point." Nothing further is said on the subject in this paper. Mackenzie[4] in a paper on the Nature of the Symptoms in Appendicitis mentions the occurrence of this cutaneous hyperalgesia but does not discuss its significance or the form of the disease in which it is present. Mansell Moullin[5] in a clinical lecture on the Significance of Pain and Tenderness in Cases of Inflammation of the Appendix mentions the presence of hyperæsthesia in most cases of appendicitis and also draws attention to the fact that "its disappearance suggests very strongly that the appendix has become gangrenous."

In order to discover the frequency with which this sign is present in appendicitis and to test the teaching that it disappears on perforation of the appendix I undertook this research, hoping to find an additional guide to operation in appendicitis. For this purpose during the time that I was surgical registrar at the London Hospital I examined all the cases of appendicitis that were admitted to the hospital as far as circumstances would permit. But I have based my observations entirely upon cases in which the notes were taken by myself and in which the diagnosis of appendicitis

[1] Brain, vol. xvi.
[2] Medical Chronicle, 1892.
[3] Centralblatt für Chirurgie, No. 2, 1903.
[4] Brit. Med. Jour., July 11th, 1903.
[5] THE LANCET, August 22nd, 1903, p. 514.

was confirmed by operation at which I was present. I have also included those cases of appendicitis operated on by myself since that time as assistant surgeon to the hospital.

Two varieties of tenderness are met with in appendicitis—the superficial, or cutaneous hyperalgesia, and the deep. The laws which govern the appearance and distribution of

FIG. 1.

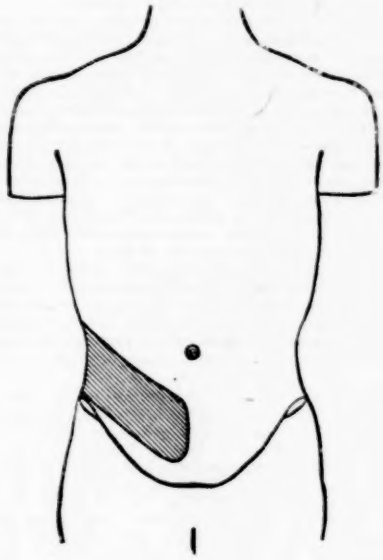
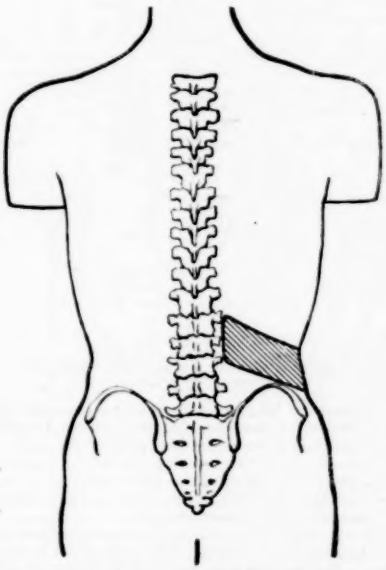


FIG 1 A.



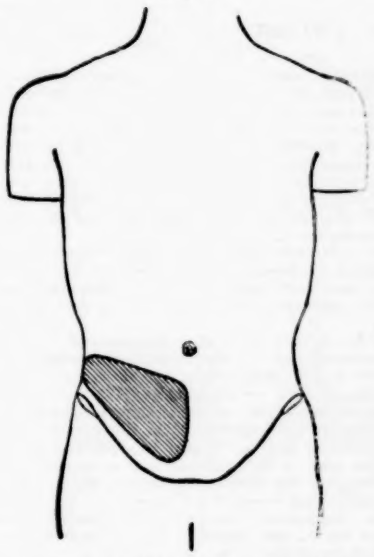
Showing the area of cutaneous hyperalgesia in appendicitis corresponding to the eleventh dorsal area of Head.

deep tenderness in connection with affections of the peritoneum have been worked out by Head.[6] My observations confirm his statements in every particular with regard to the appearance of this form of tenderness as a consequence of diseases of the appendix. I shall therefore confine my attention to the conditions associated with the appearance of cutaneous hyperalgesia. Cutaneous hyperalgesia is tested by gently pinching or stroking the skin, beginning if possible in an area which is not tender and working towards the suspected tender area and so marking out its boundaries. Care is necessary in order to avoid bringing out any deep tenderness which may be present. The skin only must be stimulated and all pressure on deeper structures avoided. In appendicitis cutaneous hyperalgesia varies from a complete band extending on the right side from the middle line below the umbilicus in front to the lumbar spines behind, down to a small circular spot a little above the middle point between the umbilicus and the anterior superior spine. This band corresponds to the eleventh dorsal area of Head[7] (Figs. 1 and 1A). Very often the tenderness extends somewhat into the tenth dorsal area also and occasionally, but not often, into the twelfth dorsal area, sending a tongue-shaped process over the gluteal region. The width of the band is in an adult about three inches. The following case is a good example of this form of cutaneous tenderness.

CASE 1.—A boy, aged 13 years, was admitted into the London Hospital on Sept. 25th, 1902, under the care of Mr. P. Furnivall. The illness began suddenly eight hours before admission and there had been no previous attack. All the usual signs of appendicitis were present; his pulse was 116, the temperature was 101° F., and cutaneous hyperalgesia was present, as shown in Figs. 1 and 1A. He was operated upon by Mr. Furnivall two hours later and the appendix was removed. The appendix was acutely inflamed but was not gangrenous or perforated.

This wide area, however, is not the one that is most often present. The usual area is on the right side of the abdomen and of a triangular shape. So often is this triangular area present that I am in the habit of describing it in my notes as the "appendix triangle" of cutaneous tenderness. This triangle is situated in the right iliac region (Fig. 2). Its

FIG. 2.



Showing the "appendix triangle" of cutaneous tenderness.

lower boundary reaches almost to Poupart's ligament, its inner almost to the middle line, and its apex is a little outside the anterior superior spine, sometimes extending to the mid-axillary line.

CASE 2.—A girl, aged 20 years, was admitted into the London Hospital in August, 1901, under the care of Mr. E. Hurry Fenwick. It was her second attack and the fourth day of the attack. Cutaneous tenderness was present over the "appendix triangle" and persisted for several days,

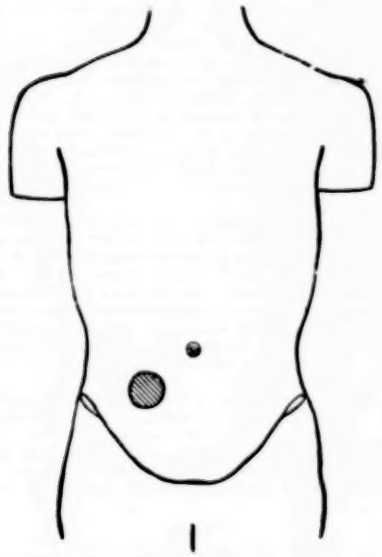
[6] Loc. cit.

[7] Loc. cit.

gradually clearing up as her general condition improved. The appendix was removed three weeks after admission. It was kinked and bound down by adhesions but showed no perforation.

Occasionally when a patient first comes under observation only a small circular area of cutaneous hyperalgesia is present (Fig. 3).

FIG. 3.



Showing the small circular area of cutaneous tenderness occasionally present.

CASE 3.—A man, aged 31 years, was admitted to the London Hospital in February, 1902, under the care of Mr. J. Hutchinson. He was in the second day of the first attack which was mild in character. His temperature was 99° F. and his pulse-rate was normal. Cutaneous tenderness was present over a small circular area a little above the middle point between the right anterior superior iliac spine and the umbilicus (Fig. 3) and persisted for three days. The appendix was removed four weeks later and showed signs of old inflammation but no perforation.

I have fortunately been able to watch cases in which the hyperalgesia diminished from the complete band to the small circular area and many cases in which the "appendix triangle" gradually disappeared, leaving the small circular spot.

CASE 4.—A man, aged 38 years, was admitted into the London Hospital on March 7th, 1902, under the care of Dr. T. Gilbart Smith. I saw the patient six hours after the onset of the illness. His temperature was 101° F., his pulse was 100, and he showed all the usual signs of appendicitis with a complete band of hyperalgesia in the eleventh dorsal area. Six hours later this had begun to clear and had left the triangular area on the abdomen and a rounded patch just to the right of the lumbar spine (Fig. 4), the intervening tenderness having completely disappeared. On the following day the "appendix triangle" alone was tender. This persisted for one day, leaving the small circular area which lasted for several days. No operation was performed and the patient left the hospital. He came in again about a month later, having been ill for three days. No superficial tenderness was present on this occasion and an abscess was opened which contained a concretion.

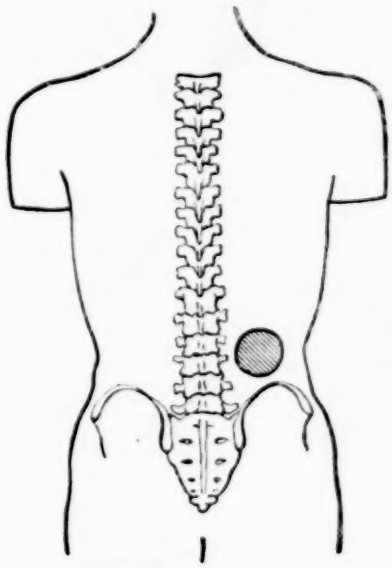
I have never examined a case of cutaneous hyperalgesia in appendicitis in which the posterior area alone was present. Cutaneous tenderness in appendicitis is occasionally bilateral. I have had the opportunity of seeing two such cases, in both of which the hyperalgesia was most marked on the right side.

CASE 5.—A youth, aged 17 years, was admitted into the London Hospital under the care of Mr. Hutchinson on May 14th, 1902. It was his fifth attack of appendicitis and he had been ill for four days. The first attack occurred eight months previously. Cutaneous tenderness was present over an area in front of the abdomen corresponding to the "appendix triangle" on the right side and a similar triangle on the left, their bases being joined in the middle line. There was no tenderness posteriorly. Operation was performed by Mr. H. L. Barnard on the same evening and the appendix was removed. Its distal end was dilated and contained pus and ruptured during removal.

I have never yet seen a case in which the hyperalgesia was present on the left side alone. This hyperalgesia is probably present in the majority of cases of first attacks of appendicitis, but in the gangrenous type of the disease no such tenderness can be discovered when the patient comes under observation and it is probable that this form of the disease does not lead to the conditions which can produce reflected pain and superficial tenderness. If a patient is progressing favourably the hyperalgesia clears as the other symptoms of the disease improve, rarely persisting in the first attack after the sixth or seventh day. In subsequent attacks, however, where a stricture has been produced as the result of the first attack, it may persist much longer and remain after all the other symptoms of the disease have disappeared.

CASE 6.—A girl, aged 14 years, was admitted into the London Hospital on March 8th, 1902, under the care of Mr. T. H. Openshaw. I saw her first 15 days after the onset of her second attack. Her pulse and temperature were normal and she complained of a little pain in the right iliac region.

FIG. 4.



Showing the rounded patch of cutaneous tenderness in lumbar region in Case 4.

I found cutaneous tenderness in the "appendix triangle," which continued for five days, leaving a small circular area which persisted till the operation a fortnight later. The appendix was found to be very adherent, it was pointing into the pelvis and showed a stricture three-quarters of an inch from the cæcum. The appendix distal to the stricture was dilated. No perforation was present.

CASE 7.—A woman, aged 28 years, was admitted into the London Hospital in November, 1901, under the care of Mr. F. S. Eve. She had her first attack of appendicitis in 1899, and since that time she had had "many" attacks. During the first one an abscess developed, which was opened. Five weeks before admission she had the last attack and the pain persisted until her admission. I saw her on the following day. Her pulse and temperature were normal. On the right side she had extreme cutaneous tenderness extending in a band from the lumbar spines to the middle line, involving the tenth, eleventh, and twelfth dorsal areas, sending a tongue-shaped process over the gluteal region. At the

operation the appendix was found kinked and very adherent. No perforation was present.

This hyperalgesia accompanies the reflected pain due to changes in the appendix in exactly the same way as the reflected pain produced by the diseases of the stomach or other parts of the intestinal tract may be associated with superficial tenderness. It may, however, persist after all pain has ceased, especially where the appendix has been inflamed previously. Like all visceral hyperalgesia it is caused by the close association between the nerves which conduct impulses from the appendix and those which conduct similar impulses from the skin to the same segments of the central nervous system. When the otherwise painless stimuli from the skin reach those segments of the central nervous system which are directly connected with the appendix the skin appears to be tender. If a peripheral nerve be inflamed the skin within its distribution may become tender. But the cutaneous tenderness seen in appendicitis is not due to inflammation of the nerve trunks as is sometimes seen in cases of pleurisy (Head[8]). For it may occupy the territory of the posterior primary division as well as that of the anterior division of the nerve and it is inconceivable that the former division could ever be directly affected in appendicitis, and it appears early in the disease while the inflammation is still limited to the appendix. The reason for the anterior area remaining longer than the posterior and often being the only one present seems to be anatomical and to depend on the comparatively greater importance of the anterior primary division of the dorsal nerves.

Cutaneous tenderness does not vary with the position of the appendix and is the same whether the appendix is in its normal position, pointing into the pelvis, on the outer side of the cæcum or curled up behind it. I have seen it typically present in a case of appendicitis where the cæcum was undescended. Here, although the cæcum was in close relationship to the liver, the superficial tenderness occupied the usual band in the eleventh dorsal area. The stimulus necessary to call forth this reflected pain and cutaneous hyperalgesia seems to be that of tension and not of irritation of the nerve endings in the appendix by the inflammation. Head[9] has already shown this to be true for other hollow viscera, particularly the heart. That the stimulus is one of tension is seen by the fact that with perforation or gangrene of the appendix the superficial tenderness completely disappears, even although the perforation be small and the remainder of the appendix not gangrenous. This could not be explained on the supposition that the stimulus is one of irritation, the result of inflammation. The following case is an extremely typical one.

CASE 8.—A man, aged 26 years, was seen by me in the out-patient room at the London Hospital in January, 1902, having been ill for 24 hours with pain in the right iliac fossa. There was no vomiting, the pulse-rate was 80, and the temperature was normal. There was definite hyperalgesia in the "appendix triangle." He was admitted under the care of Mr. Hutchinson and I saw him again on the following day. The hyperalgesia had disappeared, his pulse-rate was 130, and vomiting had set in. During the afternoon operation was performed and a recent perforation of the appendix was found.

I have notes of seven other cases in which disappearance of the superficial tenderness was associated with gangrene of the appendix. Observation of this superficial tenderness is important from the point of view of diagnosis, also as an aid in determining when operation should be performed.

It is anatomically possible for other portions of the lower intestinal tract to cause cutaneous hyperalgesia in a similar situation to that caused by the appendix and Head has recorded such cases[10] I have examined all the cases of abdominal disease which have come under my notice in the surgical wards of the London Hospital and have never met with cutaneous hyperalgesia in other diseases of the intestinal tract from the duodenum downwards.

The cutaneous hyperalgesia met with in renal colic might be mistaken for that seen in appendicitis, but as a rule it is higher, is more widespread, and tends to pass down into the first lumbar area, and where an anterior area only is left it is over the margin of the bony thorax about the situation of the tenth and eleventh ribs. The areas met with occasionally in gall-stones and gastric ulcer are too high to be mistaken for that of appendicitis and in gastric ulcer is often present only on the left side. Inflammation of the uterine appendages may give rise to cutaneous hyperalgesia but its occurrence is rare and it is, as a rule, bilateral.

It is well known that pleurisy at the base may cause pain over the abdomen. Head[11] states that "if a pleurisy is acute the intercostal trunks may become implicated in the inflammation and pain appear over their terminal distribution, exactly as pain appears in the little finger when the ulnar nerve is injured. Thus an acute pleurisy may cause pain over the abdomen or even the iliac fossa of the same side. This is not a visceral reflected pain, for it is only present over that portion of the nerve trunk distal to the inflammatory lesion and is not present over the back. It may occasionally be accompanied by superficial tenderness. But unlike the superficial tenderness that is associated with true visceral reflected pain the tenderness that may accompany a pleurisy is only present in front of (on the distal side of) the patch of pleural inflammation." But in my experience the pain of pleurisy referred to the right iliac fossa is rarely associated with superficial tenderness that could be mistaken for that of appendicitis. Barnard has recently drawn attention to the simulation of appendicitis by "pleuropneumonic disease."[12]

Cutaneous hyperalgesia is sometimes an aid to the diagnosis of appendicitis.

CASE 9.—A girl, aged 17 years, was admitted into the London Hospital in February, 1902, under the care of Mr. Mansell Moullin. The history was vague, consisting of pains in the right side of the abdomen at intervals of about three months, lasting for three or four days. Her pulse and temperature were normal, but cutaneous tenderness was found in the "appendix triangle." No other signs of appendicitis were present. The abdomen was not rigid and no deep tenderness was present. Operation was performed and the appendix was found to be very adherent and sharply bent on itself. On longitudinal section the lumen at the apex of the appendix was seen to be obliterated by fibrous tissue and there was a stricture close to the cæcum.

CASE 10.—A man, aged 45 years, was seen by me in the out-patient department at the London Hospital in January, 1902. He gave a history of a fall six days previously and of pain in the right iliac region since. His pulse and temperature were normal, but there was marked cutaneous tenderness in the "appendix triangle." I admitted him to the hospital and saw him on the next day under the care of Mr. Eve. The hyperalgesia had then gone, his temperature was a little elevated, his pulse-rate had increased, and deep tenderness was present in the right iliac fossa. A few days later an abscess was opened from which a fæcal concretion was taken.

As an aid in determining operation the disappearance of hyperalgesia is of the utmost importance. If well-marked superficial tenderness disappears without coincident amelioration of the general condition of the patient it is a sign of perforation or gangrene of the appendix. Unfortunately, a large number of cases of appendicitis which come under the care of the surgeon are not seen when hyperalgesia is present. But the absence of hyperalgesia is as important an indication of operation as its disappearance. In cases such as these coming under observation usually about the third or fourth day, with the signs of appendicitis well marked, I consider absence of hyperalgesia the determining factor in operation. In over 20 cases of early appendicitis without superficial tenderness on which I have operated I have found perforation or gangrene in the appendix without exception.

CASE 11.—A man, aged 38 years, was admitted into the London Hospital on May 30th, 1903. He had been ill three days with pain in the right side of the abdomen which had come on suddenly. He had not vomited. When I saw him his temperature was 103° F., his pulse was 100, and there was complete absence of superficial tenderness with deep tenderness in the usual situation. Half an hour later I removed a gangrenous appendix.

The importance of the disappearance of cutaneous hyperalgesia is as great in other attacks as in the first, but cutaneous hyperalgesia is frequently absent in attacks subsequent to the first without there being gangrene or perforation. (See tables.)

CASE 12.—A girl, aged 16 years, was admitted into the London Hospital on August 8th, 1902, under the care of Mr.

[8] Loc. cit. [9] Loc. cit. [10] Loc. cit.

[11] Quain's Dictionary, third edition, p. 1141.
[12] THE LANCET, August 2nd, 1902, p. 280.

Furnivall. She had had many attacks previously. I saw her 34 hours after the onset of the attack. Her temperature was 100° F. and her pulse-rate was 130. There was no cutaneous hyperalgesia but marked deep tenderness was present in the right iliac region. Her symptoms gradually subsided and her appendix was removed ten days later. It was firmly bound down by adhesions and its distal third was obliterated but there was no perforation. Had this been her first attack immediate operation would have been indicated and a gangrenous appendix would certainly have been found.

Although I consider the disappearance or absence of cutaneous hyperalgesia of great importance in deciding upon operation it is only one of the physical signs and has to be used with the other symptoms and not apart from them. The disappearance of superficial tenderness without coincident amelioration of the symptoms indicates immediate operation, but it does not follow that operation is not urgently necessary while superficial tenderness is present, and I wish to draw special attention to this. Retention of superficial tenderness never contra-indicates operation when the general condition of the patient demands it.

CASE 13.—A boy, aged ten years, was admitted into the London Hospital in August, 1902, under the care of Mr. Hutchinson. He had been ill for three days with pain in the right iliac region. His temperature was 102° F. and his pulse was 120; there was cutaneous hyperalgesia present over the "appendix triangle." His condition remaining the same operation was performed on the next day and a localised abscess was opened but no concretion was found. The appendix was not seen.

I have notes of four similar cases. In the majority of cases of abscess of the appendix cutaneous hyperalgesia is absent and a swelling persisting or appearing late in an attack of appendicitis with deep tenderness indicates an abscess.

CASE 14.—A youth, aged 18 years, was admitted into the London Hospital under the care of Mr. Fenwick on March 13th, 1902. He had been ill three days with a first attack of appendicitis. There was marked cutaneous hyperalgesia over the "appendix triangle" but no deep tenderness. His temperature was 101° F., his pulse was 116, and he complained of pain in the right iliac region. All his symptoms gradually improved. Five days after admission his pulse and temperature were normal, he complained of no pain, and cutaneous hyperalgesia was reduced to the small circular spot and persisted for two days. Two days later his temperature was a little raised and a swelling was present in the right iliac fossa, with marked deep tenderness but no cutaneous tenderness. His temperature remained high and two days later an abscess was opened which contained a concretion.

CASE 15.—A man, aged 34 years, was admitted into the London Hospital in June, 1902, under the care of Mr. Fenwick. He was in the fourth day of a first attack of appendicitis. He gave a history of vague pain in the right iliac fossa, of vomiting, and of constipation. His pulse was 96, his temperature was 100° F., and there was marked cutaneous tenderness in the "appendix triangle." This persisted for two days and then gradually disappeared. Two days after its disappearance a swelling was noticed in the right iliac fossa with deep tenderness. On the twelfth day an abscess was opened which contained a concretion.

Out of 51 cases of localised abscess of the appendix that I have examined in five only was superficial tenderness present and these were with two exceptions before the fifth day. In none of these cases with superficial tenderness was any concretion found at the operation or discharged later, and in three the cutaneous tenderness persisted for several days after the operation. The cases of localised abscess of the appendix without cutaneous tenderness all, with one exception, occurred after the seventh day, the majority after the ninth. In many of the cases no pain at all was complained of and the only sign present was a swelling with deep tenderness.

The cases of abscess of the appendix which I have examined fall into two groups: (1) early, with superficial tenderness, due to direct spread of the inflammation from the appendix without naked-eye perforation and always accompanied by grave systemic disturbances; and (2) due to late perforation of the appendix, or perhaps to continuance of the peritoneal inflammation after that in the appendix has ceased. I believe it to be the former, for in a large number of the cases a concretion was found in the abscess cavity and in those cases in which the appendix was removed a perforation was found. In general peritonitis arising from disease of the appendix I have never seen any superficial tenderness present. I am quite prepared, however, to meet with such a case due to spread of the inflammation from the appendix without naked-eye gangrene or perforation.

The observations on which this paper is based are drawn from the notes of 124 cases of appendicitis, and of these 40 showed cutaneous hyperalgesia, in six cases as a complete band, in 28 the "appendix triangle," and six as a circular area. The cases were distributed as shown in the accompanying tables.

TABLE I.—*Giving the Particulars of 124 Cases of Appendicitis.*

First Attack (81 Cases, 19 with Cutaneous Hyperalgesia).

Day of attack.	Cases with cutaneous hyperalgesia.	Condition found at operation.	Cases without cutaneous hyperalgesia.	Condition found at operation.
1st	4	There was no perforation in three cases; perforation was found in one case on disappearance of the tenderness.	*Nil.*	—
2nd	2	No perforation.	7	Perforation.
3rd	7	No perforation in three cases; operation at disappearance of the tenderness showed perforation in two; and abscess was found in two.	10	"
4th	1	An abscess developed after disappearance of the hyperalgesia.	1	"
5th	2	Operation was performed in one case after the attack, no perforation being found; in the other operation was performed immediately and an abscess found.	4	"
6th	1	After disappearance abscess developed.	3	Perforation in one case. Two were operated upon after the attack. No perforation was present.
7th	0	—	8	Abscess in seven cases; in four of these the appendix was found to be perforated. Operation was performed after the attack in one case; no perforation was present.
8th	0	—	6	Abscesses.
9th	0	—	6	Abscesses were present in five cases. One was operated on later; no perforation was found.
10th	1	Operation was performed at once; abscess supervened.	5	Abscesses.
11th	1	"	1	An abscess was opened. The appendix was removed, a perforation being present.
12th	0	—	3	Abscesses.
14th	0	—	3	"
16th	0	—	1	Abscess.
20th	0	—	1	End of the attack. The appendix was removed later. No perforation occurred.
21st	0	—	3	Abscesses.

Second Attack (18 Cases, Nine with Cutaneous Hyperalgesia).

2nd	0	—	3	No perforation in one case, perforation in one case, and abscess with concretion in one case.
3rd	1	No perforation was present.	1	Perforation.
4th	1	,,	0	—
5th	1	Abscess developed.	1	Abscess.
8th	1	Operation was performed in a quiet interval. No perforation was present.	0	—
9th	0	—	1	Abscess.
10th	0	—	1	,,
11th	0	—	1	No perforation was present.
12th	1	No perforation was present.	0	—
14th	2	,,	0	—
15th	1	,,	0	—
21st	1	,,	1	Abscess.

Third Attack (Six Cases, Three with Cutaneous Hyperalgesia).

1st	1	No perforation was present.	0	—
9th	0	—	1	Abscess.
12th	0	—	1	Perforation into the meso-appendix.
14th	1	No perforation.	1	Abscess.
21st	1	,,	0	—

More than Three Attacks (19 Cases, Nine with Cutaneous Hyperalgesia).

1st	2	No perforation was present.	2	No perforation was present.
3rd	1	,,	1	,,
4th	1	,,	2	,,
5th	0	—	1	Abscess.
6th	0	—	1	,,
7th	0	—	2	No perforation was present.
8th	2	No perforation was present.	0	—
14th	1	,,	0	—
20th	0	—	1	No perforation was present.
5th week.	1	No perforation was present.	0	—
Chronic.	1	,,	0	—

In the first attack of appendicitis before the sixth day there were 33 cases; 16 of these showed cutaneous hyperalgesia.

TABLE II.

First Attack.

With cutaneous hyperalgesia.	Remarks.	Without cutaneous hyperalgesia.	Remarks.
Before the sixth day, 16	No perforation was present at the operation after the attack in nine cases. Operation was performed at the disappearance of the hyperalgesia in three cases, and perforation was found. Immediate operation was performed in three cases, and an abscess opened. Abscess developed in three cases after the disappearance of the superficial tenderness.	22	*Local or general gangrene of the appendix was present.*
After the fifth day, 3	Immediate operation was performed in two cases, abscess being found; no concretion was present or discharged later and hyperalgesia persisted after the operation. Abscess developed in one case after the disappearance of the hyperalgesia.	40	Abscesses were present in 36 cases and in four perforation was not found.

Second Attack.

Before the sixth day, 3	No perforation was found in two cases and abscess developed in one case on the disappearance of the tenderness.	5	No perforation was found in one case. Local or general gangrene was present in two cases and in two cases an abscess was opened later.
After the fifth day, 6	No perforation was found.	3	Abscess was present in one case and perforation was not present in two cases.

Third Attack.

Before the sixth day, 1	No perforation.	0	—
After the fifth day, 2	,, ,,	3	Abscess was found.

More than Three Attacks.

Before the sixth day, 4	No perforation.	6	No perforation was present in five cases and abscess in one case.
After the fifth day, 5	,, ,,	5	No perforation was present in four cases and abscess in one case.

Conclusions.—1. Cutaneous hyperalgesia is probably present at some time during all first attacks of appendicitis, except perhaps in the fulminating type, and depends upon tension within the appendix. 2. It may be absent in attacks after the first, if the first attack was of sufficient severity to destroy nerve tissue in the wall of the appendix. 3. When present in attacks subsequent to the first it often persists long after all other signs of the disease have gone, owing to the tension within the appendix being kept up by the presence of a stricture. 4. It gradually disappears during convalescence as the other signs of the disease clear up. 5. Disappearance of cutaneous hyperalgesia without improvement in the general condition of the patient is a sign of perforation or gangrene of the appendix and should be a signal for immediate operation. 6. The presence of cutaneous hyperalgesia is no contra-indication to operation. Abscesses may form and general peritonitis may develop while it is present. 7. Its absence, on the other hand, is of great importance. Absence of cutaneous hyperalgesia, the patient coming under observation early in the first attack of appendicitis, is a sign of gangrene of the appendix unless the case is obviously a mild one and the patient is rapidly getting well. 8. Cutaneous hyperalgesia is, as a rule, absent in cases of abscess of the appendix. 9. The age of the patient and the position of the appendix have no influence upon the cutaneous hyperalgesia. 10. It is occasionally of use as an aid to the diagnosis of appendicitis.

I wish to thank my colleagues at the London Hospital for permission so readily given to quote their cases.

Devonshire-street, W.

DEFECTS IN THE AURICULAR SEPTUM.

BY FRANK E. TYLECOTE, M.B., CH.B. VICT.,

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THE two following cases, which occurred in the wards of the Manchester Royal Infirmary, under the care of Dr. Graham Steell, to whom I am indebted for his kind permission to publish them, present features making them worthy of note. Both cases were diagnosed as acquired mitral stenosis and this diagnosis was borne out post mortem, where, however, important congenital defects of the heart were revealed which had during life given rise to no distinguishing symptoms.

CASE 1.—The patient was a married woman, aged 43 years. She stated that she had been delicate since the age of five years. She had had chorea several times in childhood. For the last ten years she had often been in hospital. She complained of dyspnœa, œdema in the legs, some ascites, and pain in the chest, the back, and the

right knee. When admitted into hospital on Jan. 20th, 1903, the heart on percussion was a good deal enlarged; on auscultation systolic and diastolic murmurs were heard at the apex. The diastolic murmur was localised; the systolic murmur was conducted to the anterior axillary line, while the first sound was heard at the scapular angle. At the pulmonary area there was a localised, harsh systolic murmur which was best heard at the inspiratory acme (? exocardial). The liver was much enlarged and tender and its surface was granular, there being a distinct hepatic pulsation. The patient had no clubbing of the fingers and only some "back-pressure" cyanosis, as is usual in the later stages of mitral disease. The pulse was regular, of good tension, ranging from 70 to 80, and occasionally bigeminal. She remained in much the same state and died quite suddenly on May 11th. At the post-mortem examination the hypertrophied and dilated right and left auricles were found to communicate by a patent, almost round, foramen ovale two inches in diameter. The mitral valve showed old fibrous stenosis, barely admitting two finger tips, while the tricuspid valve admitted seven finger-tips. The left ventricle was somewhat hypertrophied. The aortic and pulmonary valves were normal. The heart weighed 24 ounces; its consistency was flabby and its apex was rounded.

CASE 2.—The patient was a married woman, aged 39 years. She complained of dyspnœa, general œdema, and palpitation. There was no previous rheumatic history, but she had had "twitchings" during her last pregnancy a year previously. There had been palpitation with cardiac irregularity for the last 15 years, but worse during the last two years—i.e., since her second confinement. She had been admitted to hospital twice this year, the last time being on April 30th, when she had rheumatism in the legs and arms, well-marked dyspnœa, and præcordial pain. The cardiac dulness was much increased from side to side. At the apex a presystolic murmur was heard with an accentuated first sound and a feeble second sound. The liver was enlarged and tender and it pulsated distinctly. There was some œdema in the lumbar region. The pulse ranged from 80 to 100; it was of low tension, feeble, and regular. In a day or two she developed signs and symptoms of pericarditis with effusion, the upward dulness reaching the second rib. She never had any clubbing of the fingers and (except very slight of the lips) never had any cyanosis. The patient slowly got weaker and died on May 17th. At the post-mortem examination the inter-auricular septum was found to be absent except a remnant which remained as a pillar on the anterior wall. It is interesting to note here that there was a small congenital perforation of the nasal septum just above the columella. The heart, when removed with the pericardium and large vessels, weighed 37 ounces. The apex was rounded and the consistency was fairly good. The right auricle had hypertrophied walls and was full of ante-mortem clot continuous with that in the left auricle, which was enlarged and its walls were thickened. The tricuspid valve admitted five finger tips. The pulmonary valve was wide and the aorta was distinctly narrower than the pulmonary artery. The right ventricle was much hypertrophied and dilated and contained ante mortem clot. The mitral valve showed old fibrous stenosis. There was a sero-fibrinous pericarditis, chiefly recent, with a good deal of effusion.

Clinically these two cases were typical ones of mitral stenosis, in the second case with pericarditis added later. The post-mortem surprise in each case shows how long life may be prolonged in this variety of congenital heart defect, the ages of these patients being 43 and 39 years respectively; while in neither case did any symptoms suggest the existence of the defects. Here, then, are two cases of auricular septal defect, both uncomplicated by pulmonary stenosis, and both allowing, though not compelling, free mixture of venous with arterial blood, and in neither case did typical cyanosis and clubbing occur. Dr. F. Wardrop Griffith has lately discussed[1] the cause of cyanosis associated with congenital heart defects. There is some causative factor of cyanosis lacking in both these cases: it appears to be pulmonary stenosis, but if so, Variot's case of stenosis without cyanosis remains inexplicable unless, as Dr. Griffith says, possibly the bronchial arteries were much enlarged and mal-aeration thus prevented. In both the present cases the ductus arteriosus was impervious, while in Case 2 the aorta was somewhat narrow relatively to the pulmonary artery, so that in this case some blood probably passed back to the right auricle and from the right ventricle to the lungs a second time. The starting point in the cause of cyanosis in congenital heart disease seems in all cases to be pulmonary stenosis, while consequent on this follow, where septal defect is associated, compulsory mixture of venous with arterial blood, mal-aeration, and also erythrocytosis, due, just as in dwellers in high altitudes, to a deficiency of oxygen. If enlargement of the bronchial arteries prevents mal-aeration the chain is probably broken.

Macclesfield.

[1] Medical Chronicle, March, 1903.

TUBERCULOSIS AND CANCER IN NEW ZEALAND.[1]

BY W. J. BARCLAY, M.D., F.R.C.S. EDIN., D.P.H.

THE following statistical study attempts to demonstrate several interesting facts. To anticipate, the chief conclusion is that whilst the death-rate from tuberculosis is much less in New Zealand than in England and Wales the death-rate from cancer is practically the same in both countries.

A.—TUBERCULOSIS.

TABLE I.—*Showing the Death-rates per 10,000 Persons of all Tuberculous Diseases and Pulmonary Tuberculosis respectively in New Zealand and in England and Wales.**

Year.	All tuberculous diseases.		Pulmonary tuberculosis.	
	New Zealand.	England and Wales.	New Zealand.	England and Wales.
1891	10·53	23·00	7·86	15·99
1892	10·90	21·35	8·16	14·67
1893	11·02	21·40	8·24	14·65
1894	11·07	19·67	8·48	13·81
1895	10·99	20·55	7·99	13·93
1896	9·62	18·83	7·40	13·01
1897	10·57	19·22	8·26	13·35
1898	10·44	19·07	8·11	13·10
1899	10·60	19·01	7·91	13·29
1900	9·85	18·99	7·56	13·32

* The English rates are those given by the Registrar-General; the New Zealand rates I have calculated from the official death returns.

For convenience the figures in Table I. have been summarised, with the addition of separate death-rates from pulmonary tuberculosis for males and for females (see Table II.).

TABLE II.—*Showing the Mean Annual Death-rates per 10,000 Persons of all Tuberculous Diseases and Pulmonary Tuberculosis respectively in New Zealand and in England and Wales during the Ten Years 1891–1900.*

All tuberculous diseases.		Pulmonary tuberculosis.					
Persons.		Persons.		Males.		Females.	
New Zealand.	England and Wales.	New Zealand.	England and Wales.	New Zealand.	England and Wales.	New Zealand.	England and Wales.
10·55	20·10	7·99	13·91	8·13	15·79	7·83	12·15

From Tables I. and II. it is evident (1) that the death-rate from tuberculous diseases is much less in New Zealand than in England and Wales; (2) that the death-rate from pulmonary tuberculosis is higher for males than for females in both countries; and (3) that the death-rate from tuberculous diseases is decreasing. Let us briefly consider each of these conclusions.

1. *Lowness of the death-rate from tuberculosis in New Zealand.*—The New Zealand rate is only about one-half of

[1] Abstracted from a thesis submitted for the degree of Doctor of Medicine of the University of Edinburgh.

the English rate. This, too, in spite of the fact that pulmonary consumption is a disease especially of young adults, of whom the New Zealand population contains an excess; in spite, also, of the fact that there is in New Zealand a relative deficiency of females, for whom the death-rate from pulmonary consumption is lower than for males; and in spite, further, of the fact that a number of consumptive patients are continually arriving in New Zealand, attracted thither by the hope of cure. For each of these three reasons the death-rate from tuberculosis in New Zealand is abnormally raised, as compared with the rate in England and Wales. What, then, is the cause of this extremely low death-rate from tuberculosis in New Zealand? There are several causes, of which the most important are that in New Zealand the climate is temperate and equable, that a great proportion of the population follow outdoor occupations, that the ill effects of factory life and of unhealthy trades are seldom seen, and that the average inhabitant enjoys good and abundant food with suitable clothing and house accommodation.

2. *The death-rate from phthisis is higher for males than for females both in New Zealand and in England.*—The reason of this is usually supposed to be that a greater number of males are working under unhealthy conditions—i.e., in factories, and especially those where much dust is produced. It is an additional proof of the accuracy of this explanation that in New Zealand where factory life is less common the excess of the male death-rate from tuberculosis over the female rate is much less marked than in England and Wales (see Table II.).

3. *The death-rate from tuberculosis is decreasing in New Zealand as in England and in most other countries.*—Two reasons for this may be alleged: first, the improved physical condition of the people from better and cheaper food and clothing; and second, the lessened chance of infection owing to the fact that tuberculosis in particular is more and more recognised as an infectious disease spread from one patient to another unless due precautions are taken. As the importance of preventing such infection is becoming more widely known it may be expected that in all countries the death-rate will continue to fall and that even the present extremely low death-rate from tuberculosis in New Zealand will be still further reduced.

B.—CANCER.

TABLE III.—*Showing the Death-rates from Cancer per 10 000 of the Population in New Zealand and in England and Wales respectively from 1886 to 1900.*

Year.	New Zealand.			England and Wales.		
	Persons.	Males.	Females.	Persons.	Males.	Females.
1886	3·68	3·69	3·67	5·90	4·31	7·41
1890	—	4·72	4·79	6·76	5·12	8·30
1891	4·68	4·60	4·77	6·92	5·17	8·55
1892	4·78	5·07	4·44	6·89	5·28	8·41
1893	5·02	5·35	4·64	7·09	5·48	8·61
1894	6·01	6·65	5·27	7·11	5·53	8·58
1895	5·53	5·67	5·37	7·52	5·84	9·10
1896	5·50	5·49	5·51	7·60	6·15	8·96
1897	5·47	5·51	5·42	7·83	6·34	9·23
1898	6·40	6·77	5·97	7·98	6·51	9·37
1899	6·24	6·85	5·55	8·25	6·70	9·70
1900	5·63	6·13	5·09	8·28	6·72	9·75

From Table III., showing the crude cancer death-rates, it appears (1) that the registered death-rate from cancer (for persons, for males, and for females) is lower in New Zealand than in England; (2) that the registered death-rate from cancer (for persons, for males, and for females) is increasing in both countries; and (3) that the registered death-rate from cancer in New Zealand is higher for males than for females, whereas in England the female rate is the higher.

Corrected cancer death-rates.—A crude cancer death rate is, however, extremely fallacious, for cancer is undoubtedly a disease which affects most heavily those past middle age and especially women. And as the New Zealand population shows a relative deficiency of adults, and especially of women, past middle life, this will of itself give to the colony death-rates from cancer which are too low when compared with those of England and Wales. Correction for age and sex distribution of the population is therefore urgently needed. This may be accomplished either by giving the death-rates from cancer at different age periods for either sex or by calculating a single corrected cancer death-rate.

1.—*Cancer death-rates at different age periods:*—

TABLE IV.—*Showing the Annual Death-rates from Cancer per 10,000 Persons in New Zealand and in England and Wales.**

Males.

Age.	New Zealand.			England and Wales.		
	1880–84	1890–94	1896	1881–90	1890–99	1900
All ages.	—	—	5·49	4·30	5·81	6·72
Years.						
0–5	—	—	0·471	0·21	0·31	0·31
5–15	—	—	0·230	—	—	—
15–25	—	—	0·267	—	—	—
25–35	0·714	0·727	0·367	0·79	1·02	1·01
35–45	2·648	3·550	2·823	2·97	3·90	4·18
45–55	10·159	12·875	15·136	9·98	12·95	14·83
55–65	19·762	31·328	30·296	22·99	31·30	37·96
65–75	31·680	54·439	47·530	37·42	50·83	57·35
75+	47·486	55·844	49·558	39·14	56·56	67·15

Females.

All ages.	—	—	5·51	7·39	8·88	9·75
0–5	—	—	—	0·19	0·26	0·29
5–15	—	—	0·117	—	—	—
15–25	—	—	0·133	—	—	—
25–35	1·525	1·579	1·783	1·72	1·79	1·97
35–45	6·952	7·533	6·983	8·52	9·18	9·42
45–55	18·079	18·098	18·558	20·42	23·28	24·33
55–65	28·445	36·036	44·369	33·68	40·94	45·61
65–75	35·782	45·998	53·458	45·06	56·43	62·54
75+	44·690	46·051	30·877	45·78	62·83	74·68

* The rates for New Zealand in the years 1880–84 and 1890–94 are as given by Mr. G. Leslie, assistant actuary, New Zealand Government Life Insurance Department, in a paper on Rates of Mortality in New Zealand, published in the *New Zealand Journal of Insurance, Mining, and Finance*, in September and November, 1895. The rates for New Zealand in 1896 I have calculated from the returns of the Registrar-General for New Zealand. The rates for England and Wales are those of the Registrar-General.

Table IV. gives results which are free from fallacies of age and sex distribution of the population, but it is convenient to express the same correction in the form of a single rate.

2. *Single corrected cancer death-rate.*—This I have calculated for New Zealand during the year 1896, a census year. The population was adjusted in age and sex distribution to correspond with the composition of the English standard million for the period 1881–90; from the number thus obtained in each age group and the observed cancer death-rates for the same age groups we can estimate the number of deaths from cancer that would have occurred in New Zealand if its population had been of the same composition as the English standard million. The results obtained are given in Table V.:—

TABLE V.—*Showing the Death-rates from Cancer per 10,000 Persons in New Zealand and in England and Wales in 1896.*

New Zealand.						England and Wales.		
Crude cancer death-rates.			Corrected cancer death-rates.			Cancer death-rates.		
Persons.	Males.	Females.	Persons.	Males.	Females.	Persons.	Males.	Females.
5·50	5·49	5·51	6·67	5·54	7·74	7·60	6·15	8·96

From the corrected rates given in Table V. the following conclusions are derived: (1) The cancer death-rate in New Zealand is really higher for females than for males. This is important as correcting the fallacy of the crude rates (see Table III.) and bringing the New Zealand statistics into agreement with those of other countries. (2) The cancer death-rate is slightly lower in New Zealand than in England and Wales. There is, however, no very great difference and probably there will in the future be less still as the certification of deaths from cancer is improved. (3) The registered cancer death rate is increasing in New Zealand as in England. Unfortunately, however, the New Zealand statistics do not afford any assistance in determining whether cancer is truly increasing or whether the apparent increase is due merely to improved diagnosis and registration.

Summary.—1. Tuberculosis in New Zealand gives a death-rate of only one half of the English rate. This appears to be due to the relative absence in New Zealand of conditions which favour the growth and spread of this disease. 2. The death rate of cancer, on the other hand, in New Zealand is practically equal to that in England. Hence it is probable that the conditions favourable to this disease are present to an equal extent in the two countries.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

TAPEWORM AS A CAUSE OF CHOREA.

BY JOSEPH A. W. PEREIRA, L.R.C.P. LOND., M.R.C.S. ENG.

IN his "Principles and Practice of Medicine" Professor W. Osler says: "Reflex irritation was believed to play an important rôle in the disease (i.e., chorea), particularly the presence of worms or genital irritation, but I have met with no instance in which the disease could be attributed to either of these causes." He also says: "Various nervous phenomena, such as chorea, convulsions, or epilepsy, are believed to be caused by the parasites (tapeworms). Such effects, however, are very rare."

These words of Professor Osler are my excuse for publishing a case which came under my care two months ago and in which a girl, aged six years, suffering from tapeworm became the subject of an attack of chorea. The child was passing segments of the worm for two or three weeks when the first manifestations of chorea became evident. When I saw the child she was in the second grade, or the severe form of the disease, in which the movements were general and she could not talk. There was never any suspicion of rheumatism in the case and her heart remained normal throughout. A dose of filix mas dislodged the parasite and in a month's time the child was practically well. The cestode was, in my opinion, the direct exciting cause of the chorea.

Both Dr. F. T. Roberts and Dr. A. H. Carter of Birmingham mention the irritation of worms as exciting causes of chorea, whilst Dr. F. Taylor and the late Dr. Edward Ellis[1] are silent on the point. I believe that the occurrence of tapeworms in children under six years of age is rare, an opinion which Dr. Ellis likewise expressed in his book. Professor Osler, however, says it is not uncommon.

Exeter.

A NOTE ON FOUR CASES OF BLACKWATER FEVER.

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HONORARY PHYSICIAN, SEAMEN'S HOSPITAL, LAS PALMAS.

DURING the past winter four cases of this fever came under my notice. There are three points to which I wish to draw attention. 1. All these cases developed on board ship homeward bound from the west coast of Africa, presumably away from any direct or recent infection. Only one of the cases had suffered from a previous attack. 2. In all the cases there had been a slight chill (malarial), for which one gramme of quinine had been taken and within a few hours the symptoms developed. 3. The last point is the satisfactory use of boric acid, one gramme of which in hot water was given every two or three hours according to the severity of the attack. If there is vomiting it could be given by rectal or subcutaneous injection.

The following is an abstract of the clinical record of the last case. The patient, who was a French explorer, developed the characteristic symptoms at 4 A.M. On the first day, at 8.30 A.M., his temperature was 103·8° F. He had an icteric tinge and his urine looked like blood. At 1 P.M. his temperature was 103·8°. At 5 P.M. his temperature was 101·2°; the icteric tinge was less and the urine was clearer. At 9 P.M. his temperature was 101°. On that day he had five one-gramme (15 grain) doses of boric acid—namely, at 10 A.M., 1 P.M., 4 P.M., 7 P.M., and 11 P.M. On the second day at 4 A.M. his temperature was 99°. At 8 A.M. it was 99°; the icteric tinge was now much less and the urine was of a brownish colour. At 1 P.M. his temperature was 98·8°. At 8 P.M. it was 98·6° and his urine was then clear. On this day he had three one-gramme doses of boric acid—namely, at 4 A.M., 8 A.M., and 1 P.M. After this date the patient made a satisfactory and rapid recovery. In none of the cases was any albumin found in the urine during convalescence.

Orilla del Marc, Las Palmas, Grand Canary.

PURPURA (PELIOSIS) RHEUMATICA WITH STERCORACEOUS VOMITING.

BY JOSEPH EDWARD JUDSON, M.R.C.S. ENG., L.R.C.P. LOND.,
HOUSE SURGEON, DISTRICT INFIRMARY AND CHILDREN'S HOSPITAL, ASHTON-UNDER-LYNE.

THE patient was a male, aged 17 years, and was admitted to the District Infirmary, Ashton-under-Lyne, as a supposed case of intestinal obstruction on May 3rd, 1903. He had been ill and under medical treatment for ten days with rheumatism of a subacute character and had been having only a milk diet. On the evening of May 1st he began to vomit and on the night of the 2nd the vomited matter, which had been of a bilious nature during the day, was from the description of a fæcal character.

On admission he was found to be very collapsed with a quick, thready pulse. There was no distension whatever of the abdomen, neither was there any hernia or any tenderness over the appendicular region; the liver dulness was present and there was no accumulation of fæces in the rectum. He complained of pain over the epigastric and umbilical regions. There was a marked purpuric rash over both ankles and the outer sides of the legs and also on the forearms. The hypodermic injections of strychnine and digitalis, which were given for the collapse, were followed by a marked subcutaneous extravasation of blood. He was given sips of hot water and small quantities of milk, but vomited immediately afterwards. On the 4th, at 12.45 A.M., the vomit was large and distinctly fæcal. A glycerine enema was given at 2.30 P.M. with a slight result. At 4.30 P.M. he again vomited, but this time it was of a bilious character. Feeding by the mouth was stopped and no more vomiting occurred; rectal feeding, however, was continued for 48 hours. The question of laparotomy was discussed but the operation was not considered justifiable. The symptoms subsided, the purpura disappeared, and the patient made a good recovery, leaving the hospital on June 23rd. I have seen him several times since and he appears to be perfectly well. There is no evidence of hysteria.

Ashton-under-Lyne.

ROYAL CITY OF DUBLIN HOSPITAL.—At the monthly meeting of the board of the Royal City of Dublin Hospital, held on Sept. 11th, a letter was read from Lord Plunket inclosing His Majesty's reply to the address presented on his recent visit to Ireland. The directors passed a vote of sympathy with the relatives of the late Mr. Henry Gray Croly, who had served the hospital for 40 years, and accepted the resignation with regret of Sir George F. Duffey, owing to ill-health, and placed on record its appreciation of his skilful services as visiting physician to the hospital during 21 years.

[1] A Practical Manual of the Diseases of Children. London: J. and A. Churchill.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

SOUTH DEVON AND EAST CORNWALL HOSPITAL, PLYMOUTH.

TWO CASES OF STRANGULATED FEMORAL HERNIA, WITH A COMPARISON OF THE METHODS OF DEALING WITH DAMAGED INTESTINE.

(Under the care of Mr. C. WHIPPLE.)

FOR the notes of the cases we are indebted to Mr. H. W. Webber, assistant surgeon.

CASE 1.—A woman, aged 68 years, was admitted into the South Devon and East Cornwall Hospital on June 6th, 1903, for strangulated femoral hernia on the right side. The hernia had been present for some years. She had been vomiting more or less for four days and on admission had stercoraceous vomiting. No attempt at taxis had been made. The patient looked ill but her pulse was good. An hour after admission chloroform and ether (Tait's mixture) was administered and the usual operation for femoral hernia was performed. The sac contained some foul fluid of rather urinous odour but it was proved that no communication with the bladder existed. The knuckle of small intestine involved was of the consistence of wet blotting-paper and evidently in a hopeless state. The constricting band having been divided healthy bowel was drawn down and the healthy area round the damaged part was stitched to the wound. The gangrenous patch was then incised and some foul dark-green fluid was evacuated. No tube was used for insertion into the proximal end of the bowel as a Paul's tube had been tried but did not seem to act well. For several days the bowel drained freely, the fæcal matter being fluid and greenish in colour, but the patient soon showed signs of inanition, losing flesh, and having a weak pulse and subnormal temperature. The wound also and surrounding skin were in a foul and irritated condition from the continual overflow of intestinal contents. Accordingly on the 16th, the wound having been rendered as aseptic as possible and the open ends of bowel plugged with swabs tied to pieces of silk, about an inch of bowel was resected from each of the ends and these were united with a Murphy's button. The reunited bowel was left *in situ*, as one feared to push it back into the peritoneal cavity in view of the doubtful condition of the wound. Two days later the junction gave way and the button was removed, leaving things as they were before the second operation. On the 23rd the following operation, suggested by Mr. Whipple, was performed. Catheters (Jaques's) were introduced into each of the ends of the bowel at the artificial anus to act as guides in finding the bowel inside the abdomen. The wound was then carefully covered up and the abdomen was opened through the right rectus muscle vertically above the wound. The portions of bowel involved having been identified by the catheters both portions were drawn up into the new wound and divided between clamps, leaving two proximal ends free and two distal portions about two inches in length fixed at the artificial anus. The proximal ends were united by a Murphy's button; the distal ends were sewn up and left *in situ*. The abdomen was then closed. The patient never rallied from the operation and died on the next day.

CASE 2.—A woman, aged 64 years, was admitted into the South Devon and East Cornwall Hospital on June 28th, 1903, with a history of four days' strangulation of a right femoral hernia for which she had worn a truss for several years. No attempts at reduction by taxis had been made. On admission she was found to have a very fair pulse, her face was flushed and somewhat dusky in aspect, and the tongue was coated but not dry. The abdomen was distended with visible coils of intestine which showed peristaltic movement. The vomit was fæcal. The patient was prepared for immediate operation and Tait's mixture was administered. The usual incisions exposed a sloughy sac which contained much blood-stained fluid, a large amount of gangrenous omentum, and a knuckle of hopelessly damaged bowel which was tightly nipped. The constriction having been divided the omentum involved was ligatured and cut away. The sac was then washed out with saline solution and the bowel was drawn well down into the wound until healthy surface was exposed. At a point three inches on each side of the damaged area Doyen's clamps covered with drainage tubing were applied and resection was performed, junction being rapidly effected with a Murphy's button, aided by a few Lembert sutures. The wound was partly closed, a gauze drain being left in the sac cavity. On the 30th the bowels were well opened with a turpentine enema. All sickness had stopped, the pulse and general condition of the patient being excellent. The after-history of the case was of steady progress towards recovery. The button was passed on the seventeenth day.

Remarks by Mr. WEBBER.—In the light of Mr. A. E. J. Barker's paper recently published in THE LANCET[1] on this subject the above reports are of interest. I am indebted to Mr. Whipple for kind permission to record these cases, of which I had charge, and to the house surgeon, Dr. H. S. Gabb, for the notes and for his careful attention to the patients. The result of the second case, taken in conjunction with Mr. Barker's paper, would seem to indicate that immediate resection of the damaged bowel is the preferable course to pursue in similar circumstances.

Reviews and Notices of Books.

A Manual of Medicine. By THOMAS KIRKPATRICK MONRO, M.A., M.D. Glasg., Fellow of, and Examiner to, the Faculty of Physicians and Surgeons, Glasgow; Physician to Glasgow Royal Infirmary; Professor of Medicine in St. Mungo's College. University Series. London: Baillière, Tindall, and Cox. 1903. Pp. 901. Price 15*s*.

WHEN a student has passed the earlier professional examinations in anatomy and physiology and is about to commence work in the wards and out-patient rooms, one of the first questions he naturally asks is as to which text-book on medicine he should select to help him in his clinical studies. It is difficult to give him an answer as there are many excellent works which a student could read with benefit, as we point out every year in our Students' Number. Dr. Monro states in his preface, and quite correctly so, that some of these are too large for the average student to master, whilst some are too small to contain the requisite amount of information. It has therefore been his aim to produce a manual which should hit the happy mean. After a careful perusal of his work we think that he has succeeded in the task; there are a few faults, but taking the volume as a whole we can cordially recommend it as a trustworthy text-book.

The first section deals with the specific infectious diseases. After a few general remarks on "fever" and on some theoretical considerations in regard to infection and immunity, each disease is considered separately. The etiology, morbid anatomy, symptoms, complications, sequelæ, diagnosis, prognosis, and treatment are carefully discussed. The incubation period is also given but no definite time is laid down as to the quarantine which should be imposed on convalescent patients. Authorities differ, no doubt, on this point, but the question is one which is of great moment to the friends of the patients, and in a future edition we would venture to suggest that Dr. Monro should state the limits during which it is generally considered that the patient may convey the disease to others. It is strange that in most text-books this question is avoided. In accordance with modern views lobar pneumonia and rheumatic fever are both included in this section as well as tuberculosis. The last is treated not only as a general infection, but as affecting the

[1] THE LANCET, June 6th, 1903, p. 1576.

various systems and organs of the body; pulmonary tuberculosis, therefore, instead of being described amongst diseases of the lungs, is discussed in this section under the heading of "Tuberculosis of the Respiratory System." We consider this classification a good one and preferable to the one usually adopted. The paragraphs devoted to the treatment of the various fevers bear evidences of being carefully compiled and the results of most modern researches are incorporated. In describing the treatment of lobar pneumonia it is admitted that anti-pneumococcic serum (20 cubic centimetres injected subcutaneously twice a day) has been recommended by some authorities but has not yet been generally accepted as beneficial. In discussing the therapeutics of yellow fever the influence of the mosquito is recognised and it is shown that there is good reason to hope that by exterminating this gnat in any given area yellow fever may in time be abolished. Dr. Monro has made this section as complete as possible, for he has included descriptions of posterior basic meningitis, glandular fever, Mediterranean fever, Weil's disease, beri-beri, verruga, frambœsia, and actinomycosis. Dogmatism to a certain extent is desirable in a work of this kind but occasionally Dr. Monro rather oversteps prudence. For instance, in discussing the diagnosis of enteric fever, he says: "In this country a fever which continues for a week without a characteristic rash, and without local inflammation to account for it, is either enteric or tuberculosis." This statement is misleading. The temperature in influenza may remain raised considerably longer than a week without a rash and without "local inflammation." In children, too, a "febricula" may be met with lasting a considerable period, and there are other conditions which might be mentioned which do not accord with this postulate.

A section is devoted to a consideration of the diseases of the blood and ductless glands. Within recent years a large amount of knowledge has gradually been accumulating in regard to morbid conditions of the blood. The etiology and pathology of some of these diseases are still doubtful, and Dr. Monro has wisely refrained from discussing at length the merits of the many theoretical points which have been raised, but has contented himself with short statements of the views of various observers. The symptoms, diagnosis, and treatment, however, are given at a length quite sufficient for the requirements of students. In the section on diseases of the respiratory system the most interesting remarks are those on the etiology of pleurisy. Dr. Monro does not appear to take such a gloomy view of the nature of "simple acute pleurisies" as do some authorities. It has been asserted that however rapidly, and apparently completely, the victims of such pleurisies recover, statistics prove that the majority of them die before three years are over with undoubted tuberculous disease of the lungs and other organs. Dr. Monro believes this statement to be exaggerated and adds that he is of opinion that if the conditions of life are favourable scarcely any form of tuberculosis is so curable as that which is limited to the pleura.

Diseases of the digestive system are well described. We particularly noted the remarks on the etiology and diagnosis of intestinal obstruction; the classification of the causes of this condition is a good one and useful when applied to actual clinical work. A large amount of information is to be gained by a study of the section devoted to diseases of the nervous system. The functional and nutritional affections are especially well described. The treatment which may be adopted in the various maladies is plainly set forth and the rarer as well as the more common diseases receive due notice. The remaining sections deal with diseases of the muscles, diseases of the skin, intoxications, and diseases due to animal parasites.

This work, although primarily intended for students, will also be of service to practitioners. The whole book is so simply arranged and theoretical considerations are reduced to such a small compass that information on practical work is easily obtained.

LIBRARY TABLE.

Introduction to the Study of Malarial Diseases. By Dr. REINHOLD RUGE of the Imperial German Navy. Translated by P. EDGAR, M.B., C.M. Edin.; District Surgeon TELUK ANSON, F.M.S.; and M. EDEN PAUL, M.D. Brux. London: Rebman Limited. 1903. Pp. 138. Price 10*s.* 6*d.*—This little book does not offer much that is new to the student of malaria. The intention of the author was to provide the ship's surgeon and the colonial surgeon, often thrown entirely on their own resources, with a book in which they could find advice, without the advice occupying too great a space. The methods of investigation and the difficulties and errors that may arise during the search for malarial parasites are described with completeness; other errors of observation and the means of avoiding them are also discussed. The book is divided into nine sections, which deal respectively with the Etiology, Epidemiology, Symptomology, Pathogenesis, Pathological Anatomy, Diagnosis and Differential Diagnosis, Prognosis, Therapeutics, and Prophylaxis. The text is illustrated with many woodcuts and a series of 21 temperature charts of tropical fevers prevalent in different places. The clinical pictures of the diseases are good. In forming a prognosis stress is laid on the information derived from the examination of the blood. We note that the dose of quinine recommended in ordinary attacks is larger than that advocated by Sir Patrick Manson and used by him in his practice. The section on prophylaxis, individual and general, is a sound one. The appendix contains a useful list of instruments and objects necessary for microscopical study and two plates showing the malarial parasites and the different kinds of mosquitoes; the plates were prepared from the author's preparations, were photographed by Professor Zettnow, and are reproduced according to the method of the new Photographic Society in Steglitz, near Berlin. The book should facilitate the recognition, management, and prevention of malarial fevers, and might prove useful to a larger section of the profession than that for which the author originally intended it.

International Clinics: a Quarterly of Illustrated Clinical Lectures and especially prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, &c. By Leading Members of the Medical Profession throughout the World. Edited by A. O. J. KELLY, A.M., M.D., Philadelphia, U.S.A. Volume II., Thirteenth Series. London: J. P. Lippincott Company. 1903. Pp. 311.—In the production of these volumes Dr. Kelly has 11 collaborators and other regular correspondents in many of the most important centres. The series contains papers on the Summer Diarrhœas of Children, by Dr. H. W. Conn, Dr. Alfred Hand, Dr. A. C. Cotton, Dr. T. S. Westcott, Dr. Matthias Nicoll, and Dr. A. B. Marfan; and on Diseases of the Pancreas, by Dr. E. L. Opie and Dr. G. P. Muller. Under the heading of Treatment Dr. L. Levi writes on Trunecek's Serum in Arteriosclerosis; Dr. J. M. Gaston on Practical Notes on the Prophylactic and Curative Treatment of Influenza, Malaria, Erysipelas, and Ozæna; Dr. C. Bouchard on Local Treatment; and Dr. J. M. Taylor on the Rest Treatment. In the section on Medicine there are four papers on the Etiology, Prevention, and Treatment of a Common Cold, by Dr. A. Haig; the Peripheral Causes of Heart Disease, by Dr. L. F. Bishop; Endocarditis in Childhood considered as a Symptom of Infective Diseases, by Dr. F. J. Poynton; and the Etiology and Diagnosis of Valvular Affections of the Heart, by Dr. T. E. Satterthwaite. There are three surgical papers—viz., on the Diagnosis and Treatment of

Hæmorrhoids, by Dr. G. W. Gay; on Abdomino-pelvic Diagnosis, by Mr. E. S. Bishop; and on the Surgical Relief of Traumatic Epilepsy, by Dr. D. B. Roncali. In the section devoted to Obstetrics and Gynæcology there are papers by Dr. J. R. Goffe, Dr. C. Lockyer, and Dr. C. D. Palmer, respectively, on the Causation of Sterility, Ectopic Gestation, and on Cervical Lacerations. The final paper is one on Surgical Intervention in Paralysis of the Ocular Muscles, by Professor E. Landolt. The volume is well illustrated with plates and figures.

Lessons on Massage. By MARGARET D. PALMER, Manager of the Massage Department of the London Hospital. Second edition. London: Baillière, Tindall, and Cox. 1903. Pp. 261, demy 8vo. Price 7*s.* 6*d.* net.—The instructions given in this book are founded upon the results of many years' experience, both in teaching and practical work. The first edition was published in July, 1901, and it must be gratifying to the authoress that a second edition has been called for two years later. A few alterations and additions have been made and chapters on the Nauheim or Schott Treatment and on Bandaging have been added. Two coloured plates and 116 other illustrations, photographic and diagrammatic, increase its usefulness. The book is written in clear, simple language and all difficulties are thoroughly explained.

Map of the Republic of Perú. Issued under the authority of DON EUGENIO LARRABURE Y UNÁNUE, Minister of Foreign Affairs.—We have received from the consul of Peru at Southampton, Mr. Eduardo Higginson, a large map of Peru with much information about the country printed on the reverse. The information is printed in English and the map is being distributed to make known "the inducements which Peru offers for capital, immigration, and colonisation." The area of Peru is given as nearly six times that of the United Kingdom and the population as about 3,000,000. It enjoys every variety of climate. Along the coast the mean temperature is from 64° to 68° F. A North American explorer is represented as saying: "Epidemics are unknown and dysentery is of comparatively rare occurrence on the Marañon. ..... Nature is so prodigal that everybody can get a living except physicians." It is therefore very disinterested of us to say that the map seems a good one.

The Story of the Vine. By EDWARD R. EMERSON. London and New York: G. P. Putnam's Sons, the Knickerbocker Press. 1902. Pp. 252.—*A Lay Thesis on Bible Wines.* By EDWARD R. EMERSON. Author of "The Story of the Vine." New York: Merrill and Baker. 1902. Pp. 63.—The author tells us that he has written the first of these books "to open the eyes of his fellow citizens," and that it is the outcome of an "extended tour" so timed that he could visit the important wine-producing centres of Europe. He chronicles what he saw and what he heard; he avoids the use of technical language, for he thinks "technics" and scientific tables are, "to say the least, tiresome." Mr. Emerson appears to have had experience of the effects of the wines of Greece, for he says they "affect the head greatly, making it ache 'ready to split,'" a point on which he is in agreement with other practical observers. Port, according to the author, consists chiefly of brandy; hence it is not surprising that "a certain nobleman" who has wine of the vintage of 1847 finds that it has not ripened yet. Sherry, too, "like the port wine, is subjected to sophistication," in connexion with which statement we refer him to our Analytical Commission on the subject.[1] Of French wine better things are said: "The finest wines that ever touched the lips of man are raised here;" and Mr. Emerson apostrophises champagne at considerable length under the curious heading "Viva Champagne"—it brightens "the star of hope," adds "a lustre to the charms of beauty," and "imparts to the pale cheek a blush that rivals the eastern sky heralding in the waking West the arrival of the solar god." The book is full of old stories, good, bad, and indifferent, and much space is devoted to the vine in America, for which the author prophesies a great future. It seems that the early English colonists strongly disapproved of drunkenness and a definition of that condition was given in a law of Maryland passed as early as 1638. Our police, and even our medical men, often have a difficulty in deciding whether a person is or is not intoxicated, but the definition of Maryland was a rather sweeping one—it was "drinking with excess to the noticeable perturbation of any organ of sense or motion." The punishment prescribed in 1658 for the first offence was either six hours in the stocks or a fine of 100 pounds of tobacco; for the second offence a whipping or a fine of 300 pounds of tobacco. For the third conviction the offender was to be "adjudged a person infamous and thereby made incapable of giving vote or bearing office during the space of three years next after such conviction." These circumstances, as well, perhaps, as soil and climate, may account for the fact that until recent times the United States of America have not been a wine-growing country as a whole. California is the one favoured spot in America for the growing of grapes and 24 of the 45 counties into which the State is divided produce wine. On the coast these liquors are called claret, sauterne, burgundy, and hock, and in the southern district they are called port, sherry, malaga, and madeira. We are not told why these names are adopted. The American vine factor, we are informed, is in the aggregate as fully advanced as his European competitors. There is something very charming in the expression "European competitors" but unfortunately for the American trade even some American people prefer what they call "the rare bouquet of imported wine." We do not profess any profound acquaintance with American wines, but the result of Mr. Emerson's extended tour, as he expounds it in his book, has not added to our knowledge of the wines of Europe, so that we cannot adopt his views of American products with any confidence. We learn from "A Lay Thesis on Bible Wines" that he is a maker of wines of over 60 years' standing.

On the Physics and Physiology of Protoplasmic Streaming in Plants. By ALFRED J. EWART, D.Sc., Ph.D., F.L.S., Lecturer on Botany in the Birmingham Technical Institute. Communicated to the Royal Society by FRANCIS GOTCH, D.Sc. Oxon., F.R.S. Oxford: Clarendon Press. 1903. Pp. 131. Price 8*s.* 6*d.* net.—This work is a record of a long series of observations begun in the year 1894 and completed in 1902, when an abstract of the paper was read before the Royal Society. The book is divided into an introduction which gives a historical sketch of the observations previously made of the streaming movements visible in the cell contents of plants, a chapter which deals with physics and chemistry in so far as they bear on the subject, a similar chapter on physiology, and one on the theoretical and general bearings of the experiments which were made to elucidate the problem. The record of the investigations gives the impression that the author has done a good, honest piece of work. The subject is one of very great interest but it is not one to which we can devote the space which the intrinsic merits of the paper deserve and we must be content to quote the conclusion at which the author arrives. This is that "the only kind of energy which appears capable of producing streaming movements under the conditions existing in plant-cells is surface tension energy and this is probably brought into play by the action of electric currents traversing the moving layers and maintained by chemical action in the substance of the protoplasm." As a theoretical explanation of the manner in which this phenomenon is brought about

[1] THE LANCET, Oct. 29th, 1898, p. 1135.

Dr. Ewart suggests that the currents may be supposed to act upon regularly arranged bipolar particles of protoplasm in such a manner as always to lower the surface tension on the anterior faces and to raise it on the posterior ones. The book is excellently printed and the illustrations are perfectly clear and are well reproduced.

Transactions of the American Climatological Association for the Year 1902. Vol. XVIII. Philadelphia: Printed for the Association. Pp. liii.-370.—The most interesting paper in this volume gives a description of a sanatory tent invented by Dr. Charles Fox Gardiner. Anyone who has had practical experience of sleeping or of trying to sleep in a tent knows that discomfort often arises from one of two causes. There may be a deficiency of ventilation or a trouble from damp. In Dr. Gardiner's tent attempts are made to overcome both these difficulties and we should imagine with success. This judgment is formed from the drawings, which give full "working details," but of course a true estimate of the value of such a tent can only be obtained by actual experience. The points which commend themselves to us are that a moveable floor is placed some distance above the ground and that the inlets for ventilation are placed low down, so that a draught, at any rate theoretically, would not annoy the inmate, while the outlet for the foul air, situated at the top of the tent, after an Indian model, is so arranged that its area can be easily increased or diminished at will. One objection to the tent which occurs to us is that the complexity of the arrangements would necessarily render it expensive and heavy and therefore unsuitable for transport. The greater part of the volume is taken up by an account of a visit which the association paid to California, and by a number of papers which were read in praise of that State. The tourists were delayed by floods in Kansas, where the mud is of a tenacious character, and this and the habits of prairie dogs impressed the party unfavourably. The welcome afforded them in California appears to have pleased them and their first host assured them that they had come amongst "a wonderful people." The 40 States had, he thought, been sifted to get the seeds to plant Southern California with men. The speaker for the visitors paid what the scribe of the society calls a "glowing tribute" to the Californians, especially the women with their "sun-kissed cheeks." All this is very amusing even if it hardly tends to raise the American Climatological Association in the estimation of less expansive Europeans.

JOURNALS AND MAGAZINES.

The Journal of Physiology. Edited by Sir MICHAEL FOSTER, K.C.B., F.R.S., and J. N. LANGLEY, F.R.S. Vol. XXIX., Nos. 4, 5, and 6. London: C. J. Clay and Sons. Price, Nos. 4 and 5, 8s.; No. 6, 3s.—The articles contained in Nos. 4 and 5, issued simultaneously, are: 1. Some Further Observations on the Reaction of Urochrome with Acetaldehyde, by Archibald E. Garrod, M.D. Oxon. 2. An Experimental Inquiry into the Formation of Gall-stones, by Vaughan Harley, M.D. Edin., and J. O. Wakelin Barratt, M.D. Lond. In these experiments it was found that gall-stones introduced into the gall-bladder of a healthy dog had a tendency to disappear but if cholecystitis was set up they did not disappear. 3. The Rôle of the Liver and Spleen in the Destruction of the Blood Corpuscles, by W. Bain, M.D. Durh. Amongst the conclusions that Dr. Bain draws from his experiments are that the liver and the spleen both have a hæmolytic action, the former chiefly on the red and the spleen on the white corpuscles, especially on the polymorphonuclear leucocytes. 4. Poikilothermism in Rabies, by J. O. Wakelin Barratt, M.D. Lond., with four figures in the text. The poikilothermism occurs in the terminal stages of rabies. 5. The Influence of Ablation of the Liver on the Sugar Contents of the Blood, by F. W. Pavy, F.R.S., and R. L. Siau. The quantity varies greatly in different experiments but never falls below one-half part in 1000 parts. 6. The Influence of Compressed Air and Oxygen on the Gases of the Blood, by Leonard Hill, F.R.S., and J. J. R. Macleod, M.B. Aberd. 7. The Time Relations of the Photo-electric Changes in the Eyeball of the Frog, by Francis Gotch, F.R.S. 8. The Spleen in Relationship to the Processes of Hæmolysis, by D. Noel Paton, M.D. Edin., and Alexander Goodall, M.D. Edin., with a plate. 9. On Some Effects of the Constituents of Ringer's Circulating Fluid on Skeletal Muscular Contractions in Rana hexadactyla, by R. Row, M.D. Lond., with 13 figures in the text. 10. A Contribution to the Chemistry of Proteids, Part ii., the Constitution of Tryptophane and the Action of Bacteria upon it, by F. Gowland Hopkins and Sydney W. Cole. The contents of No. 6 are: 1. On the Mechanism of Phloridzin Glycosuria, by F. W. Pavy, F.R.S., and R. L. Siau, with four figures in the text, and the Influence of Compressed Air on the Respiratory Exchange, by Leonard Hill, F.R.S., and J. J. R. Macleod, M.B. Aberd.

The Practitioner.—The September number of the *Practitioner* contains a more than usually large amount of interesting matter. First, there is an important article by Mr. A. H. Tubby entitled "Is the Urban Hospital Treatment of External or Surgical Tuberculosis Justifiable?" Mr. Tubby makes out a very strong case against the treatment of surgical tuberculous cases in the hospitals of towns, partly by a comparison of statistics which he has collected from town and country hospitals, and he brings forward a business-like suggestion for remedying what is obviously a most unsatisfactory and wasteful condition of affairs. Also related to the question of tuberculous disease is a short article by Dr. P. Horton-Smith containing a "healthy patient's" experiences of sanatorium treatment on the well-known Nordrach lines. Dr. Horton-Smith refutes the common accusation of monotony. Dr. Guthrie Rankin writes a practical paper on Headache and Dr. J. Blumfeld summarises some recent work in the field of anæsthetics.

THE REPORT OF THE METROPOLITAN ASYLUMS BOARD FOR THE YEAR 1902.

SECOND AND CONCLUDING NOTICE.[1]

THE isolation and treatment of cases of small-pox have thrown a great amount of work on the administrative machinery of the Metropolitan Asylums Board. It is a very remarkable fact that although the poorer classes in London are often averse to the use of the simple protective operation of vaccination yet the outbreak of an epidemic of the disease immediately causes the greatest excitement and the most fearful dread. The first great epidemic with which the Board had to deal commenced about four years after its formation in 1884-85 and during that period over 12,000 cases were treated in 15 months. In the year 1901-02 nearly 10,000 cases were treated within a period of 11 months, but of these patients it should be said that more than 1000 came from extra-metropolitan districts. The last epidemic raged from September, 1901, to July, 1902, and at one time no less than 1604 patients were under treatment. The method now adopted is immediately to banish a small-pox patient from London and no case is allowed to remain in the metropolis for more than a few hours after notification, for the patients are immediately taken to Rotherhithe by the river ambulance service of the Board. At the commencement of the last outbreak there were only 1320 beds available. Temporary buildings were provided at Long Reach (300 beds) on the Thames, by the erection of the Orchard Hospital (800 beds), by the extension of Lower Gore Farm Hospital (from 238 to 850 beds), and by the erection of some temporary huts at Upper Gore Farm Hospital. It is worthy of note that no less than 600 cases were wrongly diagnosed as small-pox "and removed from their houses." These mistakes arose in consequence of the very small acquaintance which medical practitioners have with the disease. In order therefore to afford to them and to

[1] The First Notice was published in THE LANCET of Sept. 12th, 1903, p. 776.

students some opportunity to remedy this unfortunate ignorance, medical instruction will in future be given at the small-pox hospitals and opportunities will be afforded of studying the clinical features of the disease. Since it has been the practice to isolate cases of small-pox and to refuse them admission into the large general metropolitan hospitals students have hitherto, as a rule, had very little opportunity of seeing cases, and quite a large number of medical men have started in practice without ever having seen a single case. This has been unfortunate both for them and for their patients, and the numerous mistakes in diagnosis have caused a good deal of trouble to the medical officers of the Metropolitan Asylums Board.

Mr. W. McC. Wanklyn (acting medical officer of the river ambulance service) reports that during the year 1902 7896 patients were landed at the north and south wharves at Rotherhithe. Of these 7842 were certified as cases of small-pox and 54 were uncertified. Of the former 7235 cases proved to be, and 607 proved not to be, cases of small-pox. It is both interesting and instructive to examine the list of diseases which were mistaken for this disorder, but the list is really too long to be quoted *in extenso*, for the cases fall into no less than 47 categories, including some cases of "no ascertainable disease." We must be content to mention the chief diseases which caused the mistaken diagnosis and refer those who require the full details to the table given in the report on p. 233. In a numerical arrangement it is found that chicken-pox heads the list with 203 cases, and of the other specific fevers there were 48 cases of measles, seven of German measles, and four of scarlet fever. A very large proportion of the errors arose in connexion with diseased conditions of the skin. Dermatitis unclassified (which probably includes a number of dissimilar conditions) comes next to chicken-pox, with 74 cases, and there were seven other cases of dermatitis distinctly traced to bites of vermin. There were 32 cases of acne, 31 of eczema, 30 of syphilis, 26 of lichen, 13 of erythema rheumaticum, 12 of nettle rash, 4 of impetigo, 11 of scabies, and 2 of erythema iris. The proportion of mistakes in diagnosis was 7·7 as compared with 13·3 in the year 1901 and in the year 1893. Cases are now sent off for treatment at an earlier stage than was formerly the case and Mr. Wanklyn complains that this tendency to enforce early removal is carried to extremes, so much so indeed that patients are occasionally sent off before they have manifested any distinctive symptom of the disease and who, in fact, are not suffering from it. It is, of course, well that patients should be isolated and placed under proper treatment as soon as possible, but the medical officer of the river ambulance service relates a case in which six patients, two only of whom had a rash, were sent at the same time from the same house, and he lays it down as a general rule that cases should not be sent before the eruption has distinctly proclaimed the nature of the disorder.

Some difference of opinion has existed between the medical officer of health of the borough of Bermondsey and the Metropolitan Asylums Board in regard to the effect of the ambulance wharf on the incidence of small-pox in the borough. In the report presented by Mr. Wanklyn there appears to be a little confusion between the facts observed and the inferences drawn from them. The most important fact observed by the medical officer of health of Bermondsey was that the incidence of small-pox was twice as great in the neighbourhood of the wharf as it was in any other part of the borough. The inference drawn by the Bermondsey sanitary adviser was that the ambulance wharf was the cause of the increased incidence of small-pox in its neighbourhood. The Metropolitan Asylums Board thinks otherwise. Without disputing the facts of the case the Board is indignant at the inference of the medical officer, being convinced that the facts "did not warrant him in bringing so grave a charge."

The statistics of the cases of small-pox treated are given fully in the report on pp. 251 to 267 and these may be most profitably studied in the form in which they are presented and no useful purpose would be served in discussing them in this place. Before passing from the subject, however, it may be of interest to point out that the sectional reports incidentally contain some information which is worthy of note. There is a record of the case of a patient who appears to have undoubtedly had two attacks of small-pox within a very short interval. The history is unusually complete and is briefly as follows. The first attack commenced on Dec. 27th or 28th, 1901, and the second in April, 1902; in the first illness the symptoms were described by the medical attendant as "typical" and the account the patient, who was a nurse, gave of them was perfectly clear. On going to the Gore Farm Hospital she was not vaccinated. The second attack was contracted there and she was under the treatment of Dr. F. H. Thomson, the medical superintendent, who has recorded the case.

A very important matter of permanent interest is ably dealt with by Dr. T. F. Ricketts, the medical superintendent of the hospital ships. It concerns the amount of hospital accommodation which is likely to be wanted in case of an epidemic and shows the method which he adopted in making his report when he was asked by the Board to advise as to the provision to be made in view of the epidemic which was just beginning in November, 1901. Dr. Ricketts naturally approached the subject with diffidence, or, as he puts it, "with great reluctance and realising the difficulties of the question." At the time there were 400 patients under treatment. He argued that it was improbable that the number of patients who would need isolation at any one time in the following spring would exceed 2500 and that it would probably be something between 2000 and 2500. This forecast was made on the assumption that the mortality, which was very high at the beginning of the epidemic, would fall to about 10 per cent. (as the event proved the mortality did fall but it remained as high as 16 or 17 per cent.). A high death-rate naturally has the effect of reducing the average period of treatment of cases and therefore of diminishing the number under treatment at one time and consequently of reducing the necessary amount of accommodation required. Thus a maximum between 2000 and 2500 on the assumption of a 10 per cent. mortality would approximately correspond to a maximum lying between 1800 and 2250 with a mortality of 16 or 17. As the event proved the largest number of patients actually under treatment at one time was 1600, but Dr. Ricketts observes that that figure was, as it necessarily must have been, determined by the fact that there were no more beds available. Dr. Ricketts points out that in coming to a determination as to when a patient shall be discharged from a hospital, medical officers are guided by two considerations: they have to form an opinion as to (1) whether a patient has ceased to be infectious; and (2) whether he is cured of his disorder. Small-pox patients are liable to suffer from affections of the eyes, from boils, and from abscesses, and these symptoms must be considered as part of the disease, though not necessarily infectious, and patients are usually and properly retained in the hospital until they have completely recovered. "But in the stress of the last epidemic when beds were to seek such considerations went to the wall." At such a time the least of two evils has to be chosen "and the recovered, but it was hoped uninfectious, patients were discharged to avoid the necessity of leaving acutely infectious patients unremoved from home."

Increasing experience has of late years led to a considerable improvement in the classification and treatment of imbeciles. It has been proved that whilst some of these unfortunate patients are capable of improvement, the condition of others is hopeless. These two classes require, and now obtain, different treatment in the hospitals which are managed by the Metropolitan Asylums Board. The first thing necessary is, therefore, to classify the patients and this is now done at Tooting Bec, a hospital which forms a clearing house for patients. The cases in which improvement may be hoped for are sent to Rochester House, Ealing. It is hoped that ultimately the classification of imbeciles will be more thorough and that the distinct classes will be always separately housed. The total number of cases of imbeciles which came under treatment during the year was 6323.

The report gives a rather meagre account of the changes which have lately taken place in the management of the training ship *Exmouth*, but we are told that the newly appointed captain-superintendent of the ship, who was appointed early in the year, took an unfavourable view of the condition of her hull and the Admiralty, to whom she belonged, reported that "it was practically beyond such repair as would enable it to serve for any considerable time to come." The report of the superintendent who resigned at the end of the year does not appear in the report. The training on the ship is more appreciated by the guardians of the rural districts than it is by many of those within the metropolitan area, consequently the number of country boys educated there increases and as the writers of the report rather plaintively remark "the country as a whole reaps the benefit of this excellent means of training boys

which was provided and intended for London alone." The metropolitan guardians are undoubtedly too apathetic in this matter to which we would direct their attention and we may add the assurance, which will possibly be new and even surprising to some of them, that London boys make some of the best sailors in the Royal Navy.

The total number of the staff in the employ of the Board seems enormous; it amounts to 4844. At the head office no fewer than 98 are engaged. In regard to the building of the head office itself, it is rather curious that it was built over a ventilator of the District Railway Company and it is not quite evident from the report what exit, if any, has been provided for the noxious fumes which were formerly discharged at this point. The staff of the imbecile asylums amounts to over 1000 and that of the fever hospitals to nearly 3000. The ambulance service employs about 300. The financial management of the Board is intrusted to a special committee, and, although it hardly falls within our scope to deal in any detail with this part of the Board's work, it may not be out of place to say that the recent changes made appear to show satisfactory results. For example, a considerable amount of the ratepayers' money has been saved by obtaining coal direct from the collieries and there can be no doubt that the Local Government Board—a department which has rightly the reputation of exercising due caution in the matter—is satisfied with the general financial arrangements of the Board, for it has during the year under review extended its borrowing powers to the extent of 100 per cent.

A word should be said as to the outlying work managed by the Board. In addition to the hospitals and asylums in and around London there are convalescent homes at Margate, Bognor, and other places. These institutions are of the greatest use and form a fitting complement to the other work done by the Board. It will be readily seen from the foregoing how widely the fever hospitals are distributed and how numerous they are. The working of them is usually performed so quietly and so unostentatiously that few of the people of London know anything of its scope or of its nature. This speaks volumes for the work of the medical staffs. In the report the names of the medical superintendents are given without qualifications and without titles. It is not fitting that members of the medical profession—Doctors in the Universities of Oxford, of Cambridge, and of London, and Fellows of the Royal College of Surgeons of England—should be so treated, and now that attention is called to the fact we may hope that the chairman of the Board or the Clerk to the Board will see that in future the medical officers receive their proper styles in the official literature of the Board.

ASYLUM REPORTS.

Royal Asylum, Montrose (Report for the year ending May 14th, 1903).—The average number of patients resident during the year was 690, comprising 321 males and 369 females. The admissions during the year amounted to 161—viz., 80 males and 81 females. Of these 133 were first admissions. Dr. John G. Havelock, the medical superintendent, states in his report that many of those admitted were in very feeble bodily health; 10 had general paralysis, 13 had pulmonary tuberculosis, 39 had various affections of the heart and vascular system, 15 were profoundly anæmic, four were subject to epilepsy, and the rest suffered from other complaints. The number of patients discharged as recovered during the year amounted to 63—viz., 30 males and 33 females, or 9 per cent. of the average number resident. The deaths during the year amounted to 77, or 11·2 per cent. as calculated on the same basis. Of the deaths two were due to epilepsy, two to chorea, four to cerebral hæmorrhage, five to cancer, nine to general paralysis of the insane, 10 to cardiac disease, 12 to senile decay, 14 to pulmonary tuberculosis, and the rest to other causes. A post-mortem examination was made in all cases where the consent of the patient's friends could be obtained. "The death-rate," observes Dr. Havelock, "while lower than in the previous year, was above the average and was accounted for by the number of patients received in bad bodily health. No less than six patients succumbed within a few days after their admission and there was also a large proportion of broken-down senile cases and cases of incurable disease." Among the deaths was that of a woman who had resided continuously in the institution for the long period of 57 years. The new villa for female patients has made very substantial progress and it is expected that it will be ready for occupation before the end of 1903. "By the removal of 60 patients to this building overcrowding in the female pauper division will be entirely done away with and the working of the institution will be greatly facilitated by allowing a better classification of the patients in the various wards." A thorough inspection of the institution and of the appliances for the extinction of fire was made by Captain Paterson, chief of the Glasgow Fire Brigade, who recommended certain modifications in the existing arrangements as regards the fire-pumps and water-supply. The importance of segregating tuberculous patients has been fully recognised and for some time past such patients have been treated "in the receding wings of the hospital in such a way as to minimise the danger of tubercular infection being communicated from one patient to another. I do not regard this arrangement," adds Dr. Havelock, "as an absolutely perfect one, but it seems the best we can devise in the existing buildings." The Commissioners in Lunacy state in their report that the asylum was found to be in excellent order during the visit, that every section of it was scrupulously clean, that the wards were comfortably furnished and made cheerful with pictures, plants, and objects of interest, and that the medical case-books and registers were well and regularly kept. The committee of management states in its report that the treasurer's financial statement was fairly satisfactory, as it showed a balance on the right side of £538 12*s*. The long-delayed scheme of drainage for the Hillside district, in which the asylum is included, has at length been approved of and it is expected that the works will be commenced forthwith

East Sussex County Asylum, Hayward's Heath (Annual Report for 1902).—The average number of patients resident during the year was 993, comprising 416 males and 577 females. The admissions during the year amounted to 253—viz., 99 males and 154 females. Of these, 217 were first admissions. Dr. E. B. C. Walker, the medical superintendent, states in his report that 23 males and 34 females among the admissions were between 55 and 75 years of age and that six females were over 75 years of age. 12 of the patients admitted were cases of epileptic insanity, 14 had general paralysis, and 22 were cases of incurable dementia. The number of patients discharged as recovered during the year amounted to 73—viz., 29 males and 44 females, or 7·4 per cent. of the average number resident. The deaths during the year amounted to 99—viz., 48 males and 51 females, or 10 per cent. as calculated on the same basis. Of the deaths two each were due to pneumonia, pleuro-pneumonia, and cancer; three to bronchitis; four to renal disease; seven each to brain atrophy, epilepsy, cardiac disease, and colitis; 10 to pulmonary tuberculosis; 11 to senile decay; 13 to general paralysis of the insane; and the rest to other causes. The cause of death was ascertained by post-mortem examination in 57 cases. The mean age at death for both sexes was 54 years. Four accidents of a serious nature occurred during the year and consisted of fractures of the limbs from falls; none of them was followed by a fatal termination. A female patient admitted while pregnant gave birth to a child three weeks after admission. The woman, who suffered from general paralysis of the insane, died shortly afterwards. Five patients escaped from the asylum, but all were recaptured and brought back after short absences. Early in the year a nurse who had joined the staff 12 days previously showed symptoms of small-pox. The case was of a very serious type and terminated fatally on the tenth day after the invasion of the disease. "This nurse had never been vaccinated and it was understood that her relatives had strong objections to vaccination. The whole of the staff and the greater number of the patients (about 700) were vaccinated and fortunately there was no further outbreak of the disease." The accommodation at the asylum for female patients proving inadequate a contract was entered into with the North Riding Asylum, Yorkshire, for the reception and boarding of 15 female patients and a further arrangement of a similar nature has been subsequently entered into with the Lincolnshire County Asylum at Kesteven. The Commissioners in Lunacy state in their report that the patients' appearance was tidy, that the asylum was maintained in proper order, that the bedding was in excellent condition, and that the medical case-books were well kept. The committee of management states in its report that the discontinuance of beer in the asylum reported last year has been attended with success and that there can be little doubt that the alteration is beneficial to all concerned.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 19, 1903.

Typhoid Fever and Armies.

A RECENT letter by Dr. H. E. LEIGH CANNEY in the *Times* urging the adoption of a particular policy for the prevention of typhoid fever in the army, and a leading article in the same journal advocating the immediate carrying out of the full programme propounded by Dr. CANNEY, afford serious food for thought. Postponing for the moment the consideration of the particular plan of campaign which is advocated by Dr. CANNEY we may devote a preliminary word to the ethical issue which presents itself when a complicated technical question is made the subject-matter of a referendum to the general public. It is a principle, observed in connexion with the military policy of every nation, that officers are debarred, in the case where operations in the field are in contemplation, from bringing the pressure of public opinion to bear upon the adoption of this or that strategical plan. The principle which is involved seems to us a principle of so far universal obligation that it should be applied to the strategical methods of preventive medicine in the army. The efforts ought to be discountenanced of those who seek to persuade the public to take upon itself the responsibility of selecting this or that technical method for the achievement of an end however desirable. As a matter of fact, the intelligent layman cannot be induced to take upon himself the responsibility of dictating the adoption of particular means unless it be represented to him that the problem which has to be dealt with is an absolutely simple problem, and that the remedy which it is proposed to apply is a remedy which is, by a consensus of expert authority, approved as effective. Unless he is told these things he will not take sides in a matter which is obviously without the scope of his personal experience. The problem of the dissemination of typhoid fever in the army has been represented to the public in just such a light. It may be apprehended by the intelligent layman as a transparently simple affair if he regards typhoid fever as spread solely by polluted drinking water. To the medical mind the dissemination of typhoid fever is a more complicated affair. There is involved in it, on the one hand, the indirect convection of infection chiefly by means of polluted water, milk, and shell-fish, and, on the other hand, the direct convection of infection to those who come into intimate personal contact with the sick. To the hygienist the convection of infection presents itself as an altogether formidable problem. It presents itself under one aspect where the dissemination takes place in civilised urban surroundings. And it presents itself under quite another aspect when the more primitive surroundings of the country or of an army in the field are in question.

It is obvious that in towns furnished with a water-borne sewerage system, which achieves the immediate removal of all excreta, the opportunity for the spread of typhoid fever by contact with the excreta is reduced to a minimum. Therefore the public at large remains in ignorance of this method of infection. The indirect spread of typhoid fever, associated as it is with the outbreak of epidemics, arrests, on the contrary, the attention of the layman. Generalising unconsciously from particular experience the lay mind—and to some extent the medical mind also—has come intelligibly enough to attribute a too exclusive influence to water-borne contagion, while overlooking the risks which attend direct contact with the infected excreta. This distortion of vision constitutes the strength of Dr. CANNEY'S position. If we desire to learn what are the sources of typhoid infection in more primitive surroundings we may look to our Indian cantonments, or we may turn for information to the masterly essay in which Professor KOCH has recently set forth the result of his investigations into the channels of typhoid infection in the endemically infected villages along the western frontier of Germany. In the introductory part of the essay in question Professor KOCH draws attention to the fact that the diminution of typhoid fever and dysentery which has followed the introduction of effective sewerage arrrangements into German towns has no counterpart in the rural districts of Germany. This undiminished prevalence of typhoid fever and dysentery in the villages has direct relation with the fæcal contamination which can be found, when it is sought for, in the houses of the villages and in their purlieus. In the case of the endemically infected village, which formed the special text of Professor KOCH'S discourse, the infection was clearly traced, not to indirect contagion by means of polluted water, but to direct fæcal contamination of the dwelling and its surroundings. The problem of the prevention of typhoid fever in rural surroundings differs from the problem as it presents itself in connexion with an urban environment in civilised countries, and this must not be overlooked. It will be recognised that the conditions of our army in the South African war, and the conditions of a regiment in an Indian cantonment, are analogous rather to those conditions which obtain in the endemically infected villages studied by Professor KOCH than to those which obtain around us in towns. In point of fact, the conditions which we have to deal with in our army abroad present the very closest analogies to the conditions of a German army corps engaged in field manœuvres in the endemically infected districts along the western frontier of Germany. In the German army, as in our own, the risk of the outbreak of typhoid fever among the troops quartered or campaigning in endemically infected districts is a question of absolutely national importance. It is thoroughly well appreciated in military medical circles in Germany that the outbreaks of typhoid fever among the troops, which are invariable incidents of manœuvres in the Rhineland, would occur on an infinitely larger scale if it became necessary to mass an army on the western frontier. Professor KOCH'S investigation of the spread of typhoid fever in the villages in this district had, in point of fact, its origin in these military considerations. And it may incidentally be remarked that the result which we have quoted constitutes only the first-fruits of a methodical investigation which is still

being conducted by means of well-equipped bacteriological laboratories specially placed in the endemically infected districts.

We have lessons here which it behoves us as a nation to take to heart. Perhaps the most important of these lessons is that the prevention of typhoid fever in armies forms a difficult problem, one the solution of which will involve continuous research. The second and the subordinate lesson is that it would be ill-advised to place any confidence in a plan of campaign against typhoid fever which concentrates the attention upon the prevention of indirect contagion by polluted water and which takes little account of the formidable dangers of direct fæcal contamination. Such a policy will be a policy of closing all the windows and leaving open all the doors to typhoid fever infection.

The New Profession of Optometry.

WE think that an article by a Dr. C. H. BROWN, who appears to possess an American degree, and who writes in a recent number of the *Optician and Photographic Trades Review*, merits attention from us, because the proposals therein contained meet with the approval of his editor. The *Optician and Photographic Trades Review* is a journal conducted with much ability and devoted to the advancement of those who deal in spectacles, cameras, barometers, and other philosophical instruments, and its editor considers that the arguments advanced by his contributor, Dr. BROWN, are "eminently calm, broad-minded, and judicial," adding that "coming as they do from a highly respected member of the esteemed medical fraternity they are not entirely novel on this side of the Atlantic, though they may be somewhat rare." The article thus authoritatively endorsed proposes to the world the institution of a new profession—the profession of optometry. This is to be founded on anatomy, physiology, natural science, and mathematics, and just as the medical profession has passed through certain stages of evolution, so in the new profession of optometry educational qualifications must be increased from year to year, while legislation is required (in the United States, of course) to organise boards to examine into the qualifications of those desiring to practise refraction. Dr. BROWN continues: "As optometry is a specialty of medicine it behoves the optician to know something of anatomy and physiology in general, and of the anatomy of the eye and the physiology of vision in particular. He should have some knowledge of neurology and the various nervous ailments which are directly caused by, or dependent upon, eye-strain. He should have some knowledge of ophthalmology in so far as it includes the various diseases of the eye, not for the purposes of treatment, but for its prompt recognition in those who apply to him for glasses, in order that intelligent advice may be given the patient to seek medical assistance before the pathological condition has become chronic or incurable." We submit that a man who possessed such knowledge would not be badly equipped for medical practice, whether in particular or in general. But this is not all. The new optician is to play his interested part in the diagnosis and treatment of functional neuroses. "The most common form of neurosis," says Dr. BROWN, "is headache. The location of the pain and its character are more or less familiar to us, as are other symptoms of which headache sufferers complain, such as insomnia, dyspepsia, and constipation, lassitude, and neurasthenia." The causes of these symptoms are to be sought for by the new optician. This, apparently, is Dr. BROWN'S view: can it be seriously the view of the editor of the *Optician and Photographic Trades Review*?

It will be seen that Dr. BROWN admits that in the application of the science of optics to the correction of imperfections and irregularities of eyesight much more is required than a mere knowledge of the physical conditions that may be present. It may indeed be taken for granted that so far as the optical principles involved in any case are concerned the optician is, or ought to be, capable of giving as good an opinion as the ophthalmologist. The glasses he can supply may be quite as correct as those prescribed by the medical man, compensating accurately and perfectly for the defects of the patient's eye; but unfortunately in many cases the glasses are none the less unsuitable and should not be worn. Many circumstances have to be taken into consideration of which the optician, even though he possess a knowledge of "anatomy, physiology, natural science, and mathematics," is no judge. The general health of the patient, his avocation, the conditions under which he works, the length of time the glasses should be worn, are all points upon which the medical man is better qualified to give an opinion than the optician. It is true that Dr. BROWN qualifies his contention by saying that the medical knowledge acquired by the optician should only have reference to the eye and that "in his eagerness to claim all the prerogatives of his new profession the optician must not allow his zeal to cause him to overstep the mark." The optician must not be "led into prescribing lotions for various forms of inflammation," yet Dr. BROWN adds in the next sentence, that he "believes the day is near at hand when the properly qualified or graduate optician will be allowed the privilege of using mydriatics, myotics, and cycloplegics." It seems to us that Dr. BROWN'S "eminently calm, broad-minded, and judicial" arguments amount to seeking a back entrance into the medical profession. As for the medical practitioner of the future it seems that he will enjoy a sinecure. Certain druggists will treat all coughs, colds, cutaneous affections, and genito-urinary diseases except stone, though the Pharmaceutical Society certainly does not approve of such action; certain nurses will take charge of all obstetrical cases except puerperal mania, though the scope of the registered midwife's duties are now legally defined; the bone-setter will willingly undertake all sprains, dislocations, and fractures except those of the spinal column, and only apprehensions of a charge of manslaughter limit his activity; and the new optician of Dr. BROWN'S imagining, after first ascertaining that "spinal irritation, melancholia, neurasthenia, chorea, epilepsy, and even insanity" have *not* their origin in, and are *not* dependent upon, difficulties attending the function of vision, can proceed to supply a pair of spectacles.

We do not propose to reopen any old controversy upon the sphere of the optician. It is quite clear that no one but a medical man can make a proper diagnosis, in a case where failure of sight is a symptom, by excluding the different forms of nervous disease. We take no narrow or class view

of this matter. It is a natural expression of the desire of opticians to get on in the world that they should struggle to attain to a professional position, but if the position can only be conquered by undergoing a medical curriculum they must undergo it. To re-state the position again, in words which we have previously used, the simple facts are as follows. The eyes are organs in which mere faults of shape and alterations of function incidental to advancing life are frequently complicated by physiological defects and pathological changes of a serious character. The knowledge of the qualified medical man covers, or at any rate may be presumed to cover, the whole range resulting therefrom. The knowledge of the optician at the very best covers only a small and comparatively unimportant portion. In these circumstances the claim of the optician to be a skilled adviser in matters appertaining to vision cannot be sustained. To look more particularly at Dr. BROWN'S proposal for the constitution of a new profession, we do not see in it any of the fairness and breadth of view for which it is commended by the editor of the *Optician and Photographic Trades Review*. It is a piece of special pleading for the performance of medical duties by an unqualified person, and there is nothing new about it. What Dr. BROWN means by a properly qualified or graduate optician we do not know. In this country a graduate is a person who has obtained a degree at a university. Now, even though the number of universities in Great Britain should, in response to the eloquent appeal of Sir J. NORMAN LOCKYER, be quadrupled within an appreciably short space of time, we still believe that only a small number of graduates at these universities would be desirous of serving in the shops of the sellers of spectacles. At any rate, Dr. BROWN'S suggestions for the legalisation of medical practice by unqualified persons will await realisation for some time in this country.

Laundries, Sanitary and Insanitary.

ALTHOUGH there has been much improvement during the last few years in the design and construction of laundries, so that in the average modern laundry the arrangements are nearly perfect, yet, especially in London, there still remain a large number of laundries which are a standing menace to the public health. These laundries are exempt from inspection under the Factory Act which expressly excludes from its provisions laundries in which not more than two persons outside the laundryman's own family are employed. Unfortunately, whilst they escape the attentions of the factory inspector they appear also to be outside the cognisance of the local sanitary authority, and so go without any sort of supervision. There is nothing to prevent them being insanitary and in most cases the word "sanitation" has no meaning for their proprietors. They are stowed away in all sorts of courts, alleys, and back streets, and in almost every case the premises are totally unsuited for the work. The clean and dirty linen comes into close contact in the narrow passage and in other parts of the laundry, and there is every opportunity for infection to be conveyed from one to the other. The actual washing is done in some small outbuilding, reeking with steam and in an atmosphere loaded with all forms of impurity; the ironing place is often a cellar, but sometimes the living rooms of the occupants; and the clothes are hung out to dry in the rooms where they are ironed. The rooms themselves are brought up to a scorching temperature by the stove used to heat the irons, and all ventilation is rigidly excluded. The faces and bodies of the ironers are bathed in perspiration and there is no fresh air to dilute the emanations from their bodies. Several cases have been brought to light in which linen was being handled in a room occupied by a member of the family in bed with an infectious fever; notably a case was reported in THE LANCET in which the linen sent to be washed was hung out to dry over the bed of a small-pox patient.[1]

This was some 25 years ago, but there has been no change for the better in the condition of such small laundries as have not been crowded out by the competition of the better equipped institutions. The local sanitary authorities either have no powers to deal with the small laundries or if the powers are in existence they are never used. As matters stand there is no means of knowing where these laundries exist; they are unregistered and a list compiled to-day would be practically worthless in six months' time, for they spring up, change their abodes, or die out almost from week to week. In the event of an epidemic breaking out the existence of these hole-and-corner laundries and the difficulty of discovering their whereabouts might render the task of the medical officer of health and the sanitary authorities in discovering the centres of infection a most arduous one. The importance of keeping laundries under observation is recognised by many municipalities and urban councils, but instead of noting where the real danger obviously lies they have been inclined to harass the already much regulated and inspected big laundry, where the risk of infection spreading is comparatively small. By a few local regulations the medical officer of health is given power to require laundrymen to furnish him with lists of their customers. This is simply a source of exasperation to the well-conducted laundries, which are the only ones really affected, whilst the precaution is absolutely useless in the interests of public health. The reason is that to many large laundries are attached a number of branches or "receiving shops" where soiled linen is handed over the counter. The goods are distinguished by numbers only, and the laundryman in most cases has not the remotest notion of the names of many of his customers. The only lists which the laundryman could furnish would be those of his well-to-do customers who do not need supervision. What is required to enable sanitary authorities to deal successfully with the question is an Act to compel every laundry working for hire, no matter how small it may be, to register its name and address with the sanitary authority, and the laundry should not be allowed to carry on operations unless the medical officer of health is satisfied as to its sanitary condition. However excellent the "cottage laundry" may be amongst the green fields it is a distinct anachronism in our crowded cities, where it degenerates into a "slum laundry." At some of these small laundries the actual washing and drying of the articles are done at the public washhouse and the linen is taken home to be starched and ironed; but it does not

[1] THE LANCET, August 13th, 1877, p. 241.

seem quite obvious why the rates should be utilised to enable the insanitary laundries to compete with the sanitary ones. Moreover, the system of employing women to do the washing at the public washhouse enables the proprietors of the slum laundry to evade the Factory Act as they are exempt from inspection if they do not employ more than two workers outside their own family circle.

On several occasions during recent epidemics it has been shown that although infection may reach a big laundry, when some of those who sort the foul linen may contract the disease, yet it never gets beyond the washhouse. The temperature in the modern rotary washing machine is sufficiently high and thorough treatment is carried on for a sufficiently long time to sterilise the linen. In a laundry properly planned and built for the purpose, the sorting room, where the foul linen is received, and the packing room, where it is put into hampers for delivery, are quite distinct. They are frequently separated by the whole length of the laundry, so that the risk of direct infection being conveyed from the foul to the clean linen is *nil*. On the other hand, it is well known that small laundries frequently act as centres of infection, first, because the temperature of the washing is not sufficiently high or prolonged to exert a sterilising action; and secondly, because the clean and foul linen come into close contact. Sanitary regulations for laundries should insist absolutely upon the sorting and packing departments being kept entirely separate and being provided with distinct entrances into the laundry, so that there can be no risk of contact. And if all laundries, no matter how small, were brought under the Factory Act, the reform would go a long way to remove a standing public danger.

Annotations.

"Ne quid nimis."

THE NEW REGULATIONS FOR THE NAVAL MEDICAL SERVICE.

WE published on p. 774 of THE LANCET of Sept. 12th the new regulations for the Naval Medical Service, from which it will be seen that a resolute attempt has been made to meet certain of the acknowledged grievances of members of the service. In respect of promotion we notice two important modifications. One is that a successful candidate for a commission in the service may serve for a year after entering the service and count the time for promotion as house surgeon, house physician, or resident medical officer in a hospital of proper standing. The other is that the posts of house physician and resident medical officer are recognised, as well as that of house surgeon, as appointments which can be occupied by candidates for the service or by officers who have entered the service, their term of office to count for promotion. Hitherto the post of house surgeon only has been so recognised. In the matter of retirement facilities are now offered that may appeal to many men. An officer may retire after four years' full-pay service with a gratuity of £500 and serve in the reserve under conditions which certainly cannot be called onerous. We think that the bid that is made, in these two innovations, for candidates of the best sort ought to be successful. A man can fill the coveted junior posts at his hospital and count the time for promotion, while he can retire in favourable circumstances if he finds his bent is more towards civilian practice.

TRADE TERMS.

As medical journalists we are more than frequently concerned with the false descriptions applied to food and drink, the excuse being that the untrue labels are merely "trade terms." A case which was heard at the Bow-street police-court on Sept. 11th shows very well what we mean, though it was an article of raiment not of food that was in question. A trader was summoned for selling waistcoats which he described as "linen." As a matter of fact, they were made of cotton. The defendant said that they would sell just as well if he described them as cotton, and that it was no advantage to him to describe them as "linen." What we cannot understand about the average trader is his objection to call things by their right names. Cotton is called linen and mixtures of cotton and silk are called silk. Horrible mixtures of grain and potato spirit coloured with burnt sugar are called brandy, sometimes, as in a case which came under our notice, with the name of a well-known firm of makers of real brandy tacked on to the "trade term." American hams are sold as best Irish, and margarine is sold as butter. But the converse is never the case. If it is necessary for the requirements of trade to call things by their wrong names why do traders not give the better article the worse name? Concerning the "linen" waistcoat a candid trader writes to a contemporary and says: "The word 'linen' is a generic term in the trade for all light cotton or linen drill fabrics used in making summer waistcoats." Another inevitable custom in trade is for a trader to excuse himself when he has sold to a customer something for which he did not ask, by saying: "You wouldn't like it if you had it." This is the excuse generally given when a blend of grain spirit is sold as real malt whisky. We are quite aware that some persons prefer grain whisky to malt whisky, but what we want to know is, if grain spirit is more liked than malt why do not traders describe it as such on the bottles?

THE DISTRIBUTION OF THE BACILLI OF DIPHTHERIA AND OF TUBERCULOSIS IN DWELLING ROOMS.

WE have received a reprint of a paper by Dr. H. W. Hill, director of the Boston Board of Health Bacteriological Laboratory, from the Proceedings of the thirtieth annual meeting of the American Public Health Association, held at New Orleans in December of last year. Dr. Hill examined a number of rooms occupied by patients suffering from diphtheria and tuberculosis for the pathogenic organisms and also made experiments as to the length of time the bacilli remained virulent when exposed to ordinary climatic influences. Seven rooms in private houses and three hospital wards were examined for the diphtheria bacillus; in two instances positive results were obtained, one from a room and one from a ward. For the bacillus of tuberculosis ten private rooms and 18 rooms in hospital were investigated. Three private rooms and two rooms in hospitals yielded positive results. The specimens were taken from the furniture, the walls, and the floors of the rooms and from the bed linen. As the result of his investigations Dr. Hill concluded that rooms occupied by tuberculous patients are more infected with tubercle bacilli than rooms occupied by diphtheria patients are infected with diphtheria bacilli. The experiments on the drying of the organisms, so far as they went, showed that the diphtheria germs are slightly more resistant to exposure than are those of tuberculosis. It is probable that the greater ease in finding the tubercle bacillus is due to its distribution in greater numbers about the room. In respect

of the cases of diphtheria, it should be mentioned that the tests were all made after the patients were declared to be convalescent, but of course before the rooms were disinfected. Taking four weeks as the average duration of a case, the bacilli are probably more abundant in the nasopharynx and more abundantly distributed therefrom in the early than in the late stages of the disease. Therefore a very large proportion of the bacilli thrown out during the first week and deposited on exposed surfaces will have died from drying before disinfection is carried out. A large proportion of those thrown out in the second week will also be dead and even those of the third week will have suffered some weakening. This may partly explain why so few positive results were obtained. In tuberculosis, on the other hand, the bacilli (although on exposed surfaces they die about as quickly as those of diphtheria) have their numbers more or less constantly recruited by the coughing, the talking, and the spitting of the patient. As the disease progresses this distribution is likely to increase rather than to diminish. Dr. Hill's experiments in regard to tuberculosis corroborate those of Professor Cornet and other observers, while those in connexion with diphtheria tend to show that although the infection may be distributed through the room after the patient is convalescent the risk of infection to other individuals is slight.

A SYSTEM OF OUTDOOR EXERCISES FOR THE DEMENTED.

THE Manhattan State Hospital for the Insane, which, under the management of Dr. A. E. Macdonald, has already been distinguished for its pioneer work and progress in regard to "tent-life" for the tuberculous insane, an account of which was referred to recently in a leading article in THE LANCET,[1] decided that it was desirable to continue the idea of allowing the patients as much out-of-door life as possible during their residence in the wards throughout the winter months. The old methods of taking demented patients out for a perfunctory walk around the grounds having been found wanting in many respects, as such exercise failed to arouse any interest in the patients or to awaken them from their apathy and listlessness, a graded and systematised plan of outdoor exercises was devised. The ward notes taken concerning the class of patients in question showed them to be dull, listless, and apathetic, untidy in their habits, destructive to their clothing, evincing no appreciation of their own condition, and showing not the slightest interest in their surroundings. Games and entertainments seemed to awaken no response in them and if left alone they sat for hours in one position—taciturn and inactive, dribbling at the mouth, and making no effort to use the toilet. Dr. C. L. Carlisle, assistant medical officer of the hospital, reports in the *American Journal of Insanity*, No. 4, 1903, an account of an attempt made to improve the physical and mental condition of this class of patients. The first step in treatment was to improve the physical health by a judiciously selected dietary. The dietary had to be one which, says Dr. Carlisle, contained "the greatest possible amount of tissue-building material with the least possible amount of detritus," for it had been demonstrated that simply increasing the ordinary diet without regard to the individual patient's requirements had not only failed to show results in increased assimilation and nutrition, but caused an actual increase of gastro-intestinal disturbances with a proportionate rise in the percentage of filthy and untidy cases. Therapeutic adjuvants to such a selected dietary were found in the digestive ferments and in medication directed towards raising the general muscular tone of the patient. With this betterment of the physical condition and freedom from annoying intestinal troubles came an improvement in the habits of the patient. He grew brighter and more receptive to the suggestions of the nurses and by patient repetition and reiteration his habits grew more cleanly, more tidy, and less destructive. The system of physical exercises devised for the further improvement of these patients aimed at stimulating their blunted conceptions and awakening their dormant mental processes. The simplest form of game in which the demented class can engage, says Dr. Carlisle, is passing a football from one to the other. The simplest form of useful exercise is drawing a lawn-roller. It was found that patients taking no interest in one form of occupation could be made to take interest in another, and the outdoor exercises designed for their pastime and amusement were graded in the same way. No patient was forced to take part in one form of game if another was more to his liking. In order to meet all such contingencies the hospital adopted a system of outdoor amusements which embraced almost every game known in the sporting field. The form of game chosen depended upon the mental capability of the contestants, teams of baseball and similar games being equally matched in this respect as far as possible. During inclement weather in winter the hours devoted to these outdoor exercises designed for pastime were spent in the gymnasium, where under proper supervision the patients could amuse themselves to their heart's content, supplementing gymnastic exercises with all manner of indoor games, including bowling. "By thus systematising and grading the amount and character of our outdoor exercises for patients," says Dr. Carlisle, "we have reduced the number of filthy cases to less than one-fifth of 1 per cent. of the entire population of the hospital, exclusive of those patients habitually confined to bed." During the year 1902 nearly 25 per cent. of the patients in the wards for the extremely demented and uncleanly have been "graduated" through these exercises and have passed into wards designed for the better class of working dements. Some, indeed, have passed further up the scale and are taking their places regularly with the best class of shop-workers. It was noticed that the most markedly beneficial results occurred in cases of secondary dementia following melancholia. Dementia secondary to mania was marked by a tendency to chronic destructiveness and by less capability of receiving instruction. Another class of patients in whom the systematic outdoor exercises produced great benefit were those of psychopathic degeneracy and the allied forms of adolescent insanity or dementia præcox, the youth of patients of this class being an important adjuvant in accelerating their improvement. Not only does this system of exercise, concludes Dr. Carlisle, improve the health of the patients, but it aids in a marked degree in developing the usefulness of these dependents on the State and in rendering them in a measure self-supporting instead of being an absolute burden on the resources of society.

[1] THE LANCET, May 2nd, 1903.

THE METROPOLITAN WATER-SUPPLY.

THE report on the condition of the metropolitan water-supply during the month of July has recently been issued by the Water Examiner. The Thames river water was in good condition during the whole of the month and the height of its flow varied from a point seven inches above to over three inches below the average summer level. At West Molesey the total amount of rainfall during the month amounted to 3·73 inches. The chemical analyses of the supply made on behalf of the Local Government Board showed that the proportions of organic impurities in all the supplies was higher than it usually is during the summer months and that the largest quantities of organic impurities in all the supplies were present during the earlier days of the month. Only one full analysis, however, was made of one specimen of each supply and in every case the sample was taken towards the end of the month (on July 20th). The

result of the analyses showed that the relative amount of organic impurity found in the specimens could be numerically represented as follows: Kent, 7; New River, 13; Southwark and Vauxhall, 27; Lambeth, 32; Grand Junction, 34; East London, 42; Chelsea, 44; and West Middlesex, 49. The analytical report is signed "H. J. Helm, p.p. T. E. Thorpe."

THE CASE OF DR. LACHLAN GRANT.

ON Thursday, Sept. 10th, Dr. Lachlan Grant, in accordance with an order of the Court of Session, had to cease from practice in Ballachulish. The quarriers are still standing by him and during the time for which he may be debarred from practice in the district they have appointed a substitute to attend to themselves and their wives and families. Dr. Grant is continuing to practise outside the prescribed area and in the meantime is awaiting the result of the appeal to the House of Lords. A very enthusiastic meeting of the quarriers was held on Sept. 4th, when the decision was expressed to stand by Dr. Grant. The defeat of the Government in the recent Argyllshire election is attributed in some quarters to the Ballachulish case, for the Unionist candidate had among his supporters a "gentleman who is believed by everyone in Ballachulish to be mainly responsible for the present deplorable situation." So says a correspondent writing in the *Glasgow Herald* of Sept. 7th.

THE TREATMENT OF GANGRENOUS HERNIATED BOWEL.

TWO cases of strangulated femoral hernia treated by different operative methods are reported by Mr. H. W. Webber as having been operated upon in the South Devon and East Cornwall Hospital by Mr. C. Whipple. The methods employed are compared in the narration of the cases and lead us to consider the following question. When the sac of a hernia has been incised and the operator finds that the contained intestine has been so much damaged that it will probably or certainly die, what is to be done with the gangrenous bowel? To take the methods in their historical order we may mention that the first mode of treatment of such a condition was to leave the herniated bowel *in situ* without attempting to return it, hoping that when the bowel wall sloughed away a fæcal fistula would result and thus any further intestinal obstruction would be avoided. Still later, it was customary to make an opening into the gangrenous bowel at the time of operation and thus to relieve the obstruction at once. Occasionally when the death of the loop of the bowel was not quite certain some surgeons were in the habit of returning it just within the hernial opening, so that the intestine becoming fixed by adhesions, any fæcal extravasation which might occur could make its escape through the herniotomy wound which usually in these conditions was not closed. The fæcal fistula or artificial anus which resulted in most of these cases was generally left untreated, though attempts were made from time to time to close it, sometimes by drawing together the edges of the aperture and sometimes by the employment of Dupuytren's enterotome or other similar instrument. These attempts, however, were frequently, if not usually, failures and many of the patients who survived the gangrene of the bowel suffered from fæcal fistula for the remainder of their lives. The next advance in the treatment consisted in endeavours to close the adventitious opening into the bowel by an open operation; the abdominal wall was incised round the fæcal fistula and the adherent portions of bowel having been removed an intestinal anastomosis was performed. Since in this operation it was necessary to lay open the peritoneal cavity it was practically impossible to perform it with any reasonable chance of success until the advent of antiseptic surgery justified a surgeon in doing a laparotomy for a condition not endangering life. At the present day two courses are open to the surgeon who encounters gangrene of the bowel in the course of a herniotomy. He may follow the practice already indicated, cutting through the necrosed bowel wall and attaching the intestine to the edges of the wound by stitches, and he may leave to a subsequent occasion the task of re-establishing the continuity of the intestine; or he may at one and the same operation relieve the intestinal obstruction, excise the gangrenous bowel, and perform the intestinal anastomosis. It is at once obvious that the latter course is preferable if it be accompanied by no great increase of shock. For the risk of a second operation is avoided and this risk is by no means small in spite of elaborate antiseptic precautions. The choice of method must depend on the individual case. Should the general condition of the patient at the time of the herniotomy be fair it is far better to complete the operation at once by bringing together the ends of the bowel after removing the damaged gut. If, on the other hand, the patient be utterly collapsed from prolonged intestinal obstruction, then his condition may be such as not to justify any unnecessary prolongation of the operation, and the surgeon must for the time be satisfied with having relieved the obstruction. Fortunately, the statistics which have been published show that the cases in which the surgeon cannot complete his work in one operation form but a small minority, and in this opinion most surgeons will concur. There is an additional argument in favour of immediate intestinal anastomosis. In cases where the bowel involved is part of the jejunum much wasting may follow the establishment of an artificial anus on account of the small length of bowel from which absorption can occur, and thus the condition of the patient at the subsequent operation will hardly be better, and may be worse, than at the first. Taking all these facts into consideration it cannot be doubted that the completion of the intestinal anastomosis at the time of the herniotomy is far better than the operation in two sittings.

THE DISINFECTION OF SHIPS.

THERE is at present, fortunately, no epidemic of cholera or plague calling for the observance of special precautionary measures at our numerous ports, but the possibility of such an outbreak is always looming before the officers who are charged with the duty of guarding the channels through which infectious diseases are introduced. Many sources of danger would be eliminated by systematic disinfection of all goods which there is reason to suspect of playing the part of fomites, and this consideration applies not only to the diseases above mentioned but also to variola, anthrax, enteric fever, glanders, &c. The task of securing perfect protection against these disorders is of such magnitude that it is hardly within the scope of even the most enterprising of sanitary authorities, and no doubt the perfunctory way in which sterilisation is often attempted is due to the consciousness of inability to deal with all the needs of the case. To squirt a few pints of water tinted with potassium permanganate over the outside of a bale is not a proceeding to which a competent official can devote himself with conviction, except, perhaps, as to the futility of his efforts, although the pretence of disinfecting may serve some useful purpose by allaying popular excitement. The method of applying pieces of silver to the palm of the operator, which is in vogue at certain foreign ports, is simpler and possibly quite as efficient. To obtain the best results it is desirable to treat ships and cargoes before the latter are discharged, and this can only be done by means of gaseous disinfectants. Of these sulphur dioxide is practically the only

one which is at once cheap and serviceable, but where the aim is merely to free the vessel from rats or insects, as, for instance, in the case of plague or yellow fever, carbon dioxide may prove of considerable value. At Marseilles Dr. Jacques, the medical officer of health, employs the latter gas. It is mixed with the air of the holds and cabins to the extent of 33 per cent. by means of the apparatus of Lafond, which enables the gas to be rapidly liberated from the cylinders into which it has been compressed. Sulphur dioxide is a more effective germicide and, provided the objection that it injures delicate fabrics or other articles comprised in the cargo can be met, it presents distinct advantages. The difficulties in the way of using it seem to have been overcome at Dunkirk and in a recent number of the *Revue d'Hygiène* MM. David and Durian have described the method successfully employed by them. A generating plant on Clayton's model, fitted up on a special barge, is brought alongside and the air of the various compartments of the vessel is impregnated with about 8 or 9 per cent. of sulphur dioxide. After from two and a half to three hours the gas is pumped out and fresh air is admitted. Many vessels have now been dealt with in this way without, it is said, appreciable damage to the goods with which they have been loaded and the materials required are sufficiently inexpensive to render a wider adoption of the procedure feasible.

REPORT ON PRISONS AND PRISONERS IN IRELAND.

THE twenty-fifth annual report of the General Prisons Board, Ireland, states that the number of criminal prisoners committed to the local prisons in Ireland during the year 1902 was 32,395, being an increase of 309 over the number for 1901. Notwithstanding the slight increase in the number of committals the daily average number of prisoners in custody during 1902 was 56 less than in the previous year owing to the greater proportion of short sentences. The sentences of about 60 per cent. of the total number of convicted local prisoners committed during the year were for terms not exceeding two weeks. The table of returns of convicts—i.e., prisoners committed to sentences of penal servitude—shows that a remarkable decrease is occurring year by year in this class of cases. Thus the number of convicts in custody on Jan. 1st was 464 in 1895, 397 in 1897, 332 in 1899, 292 in 1901, and 270 in 1902. On Jan. 1st, 1903, the number of convicts had still further decreased to 249, which comprised 235 males and 14 females. As in previous years, about 50 per cent. of the convicted local prisoners were committed for drunkenness. The committals during 1902 include 194 "juveniles"—i.e., prisoners under 16 years of age. Of these, 21 were sent to reformatories and industrial schools, 14 were discharged under the First Offenders Act, 95 were sentenced to terms of imprisonment varying from 24 hours to three months, five were fined or bound to keep the peace, and of the remainder, 54 were not convicted and five remained untried at the end of the year. The total number of convicted juveniles was 232 in 1900, 200 in 1901, and 135 in 1902. 51 prisoners were transferred from local prisons to lunatic asylums on being found insane. Of these, 11 were found to have been insane at the time the offence was committed, 32 were insane on reception, two were of doubtful sanity, and six were found to be of sound mind. Of the six cases where insanity developed temporarily while in prison, three cases were due to alcoholism. The conduct of the prisoners has generally been good; over 93 per cent. of the local prisoners and over 68 per cent. of the convicts received no punishment during the year. Under the new Local Prison Rules the period of separate or solitary confinement for convicts has been reduced from nine months to six months for males and to four months for females, while the privileges of writing and receiving letters and visits have been increased. Eight cases were committed to the State Inebriate Reformatory at Ennis during the year—viz., three males and five females. The Board states that there is a prospect of certified inebriate reformatories for women being shortly established in Ireland. The extracts published in the report from returns made by governors, medical officers, and chaplains of local prisons show that while most useful and varied work is done by, and taught to, prisoners, religious and secular education are given, and that in many prisons facilities are given for the use of the prison libraries.

THE PREVALENCE OF SMALL-POX.

AN outbreak of small-pox in a Lincoln lodging-house recently made it necessary that prompt steps should be taken to isolate those who had been in contact with the diseased persons. As a result the Lincoln sanitary committee, with Dr. C. Harrison, the medical officer of health of the city, formed an isolation camp near the small-pox hospital on the West Common, and within 20 hours the whole of the "contacts" had been placed there, their clothes had been destroyed and others given them, and they had been disinfected and put under observation. Stout wood floors were put down in the camp, beds supplied, tables erected, a kitchen with cooking-range built, special isolation tents put up, and latrines provided, and the whole of the men from the lodging-house were induced to place themselves in this isolation camp. As a result the chances of the spread of the disease have been minimised and the patients are being properly attended. The Oldham town council has refused to accept a recommendation of the health committee that all persons who have been exposed to the infection of small-pox should be isolated during the incubation period.

DEATH CERTIFICATION AND INSPECTION OF THE BODY.

IN a recent article in THE LANCET attention was called to the fact that the law did not require the medical man granting a death certificate to have first inspected the body. At the conclusion of an inquest held at Stepney lately Mr. Wynne Baxter, the coroner for East London, called attention to an incident which pointed to a change of practice being desirable, but which at the same time supported the view that this cannot reasonably be expected to be made by the medical profession of its own initiative. A mother appears to have found her child in bed apparently dead and to have gone to the Children's Hospital, Shadwell, for a certificate as the child had been taken there twice by her and had been seen by one of the staff of the hospital. This gentleman refused to give a certificate of the cause of death, but informed the coroner of the case and on the coroner's officer making inquiry the child was found to be alive, the mother alleging that she had made a mistake. The coroner commented by saying that had the medical man given a certificate and had the life of the child been insured the money might have been obtained although the child was still alive, an observation the correctness of which is proved by a case recently described in THE LANCET. A juror then seems to have remarked that there appeared to have been great carelessness and that the medical man ought to have made some inquiry before reporting the death. The medical man clearly acted correctly by giving information to the coroner at the earliest opportunity, which is presumably what every coroner would desire to have done. There may have been carelessness on the part of the mother, but most people will be of opinion that the proper person to make inquiry was the person who, in fact, made it—namely,

the coroner's officer. A medical man, who was not in any event going to certify, could hardly be expected to leave his work, whether in a hospital or not, in order to verify the parent's statement. The incident, however, calls attention to the uncertainty which may be imported into death certification by mistake or fraud, especially where hospitals are concerned. In existing circumstances it would be out of the question to expect the medical officers of hospitals to visit the homes of deceased out-patients for the purpose of death certification, nor would it be possible to insist upon the body being brought to the hospital. Where a motive exists for obtaining a death certificate wrongfully it is usually, we may say invariably, to be found in the fact that the life of the deceased has been insured.

PROBABLE POISONING BY TANNIC ACID.

AN interesting case was recently inquired into at the Southwark coroner's court, when Dr. F. J. Waldo held an inquest on the body of a man who died after being immersed in a quantity of oak-bark tanning liquor. The evidence showed that the deceased man was found up to his waist in a pit of the liquor, whence he was removed, after having been seen by a medical practitioner who was summoned, to Guy's Hospital. He was then found to be suffering from violent diarrhœa and vomiting and was in a state of collapse. He died about three and a half hours after his removal from the tan pit. A post-mortem examination proved that he had died from an irritant poison. A full chemical examination of the liquor was made but no metallic substances were discovered with the exception of minute traces of calcium and potassium. We are not aware that a case of this nature has previously been reported in this country, but it was mentioned during the course of the proceedings that a similar instance had occurred in Germany 40 years ago. Tannin in small doses acts as an astringent, but in larger doses would in all probability act as an irritant. It is possible also that the irritant action would be produced in some individuals more readily than in others. From these considerations we believe that the opinion expressed by Dr. S. Hodgson, the house physician at Guy's Hospital, that the man had died from poisoning by tannin to be a correct one.

MANCHESTER AND SALFORD SANITARY ASSOCIATION.

THE annual report of the Manchester and Salford Sanitary Association for 1902 has just been issued. This very useful society has for over 50 years—last year being its jubilee—done much to educate Manchester citizens of all degrees in matters affecting health. Amid many discouragements, much apathy and indifference, it has persevered with its work, and from having been suspected and covertly opposed by some of the authorities it is now recognised by the corporation and all public bodies as working usefully and unostentatiously for the good of the people. In an inaugural address Dr. J. F. W. Tatham in 1887 said: "The history of sanitation and of philanthropic endeavour for the good of this vast community, especially during the period anterior to the last decennium, is neither more nor less than the history of the Manchester and Salford Sanitary Association itself." Its work is absolutely disinterested, for it is a voluntary agency composed of merchants, professional men, and private citizens not seeking their own benefit but striving to lessen the sanitary evils still too common in our big cities, evils which affect most of all the poorest, most ignorant, and most helpless of the people. The Manchester corporation is probably as regardful of the public health as any of our municipal authorities, but it is not claiming too much for the association to say that it has long acted, and still acts, as a useful stimulus to that body. The chief event in the history of the association last year was the Jubilee Conference but the report shows the wide range of subjects coming under its ken. The parks and playgrounds are watched with the view of preventing encroachments; the housing question, the ventilation of schools, the danger of domestic lamps, and a score of other allied subjects all receive attention. In view of an anticipated visitation of small-pox a leaflet on vaccination was reprinted and widely distributed, and a pamphlet on the same subject by Dr. J. W. Hamill has been published and has had a large circulation. A deputation from the association has urged on the paving committee of the city council the desirability of using noiseless pavement in front of hospitals. At the request of the Jubilee Conference a petition "that physical training may be promoted by the Government on a scale co-extensive with the school system of the country" was influentially signed and presented to the House of Commons. Chemical nuisances—and chemical manufacturers seem to the rest of the world to exercise their talents largely in the production of noxious odours—have engaged the attention of the association; and *apropos* of the explosions that have occurred in the Manchester sewers, the report states that the Manchester Corporation Act, 1902, "contains provisions empowering the corporation to prevent the discharge into sewers of poisonous or explosive gases." Letters signed by the chairman, Professor Dixon Mann, have been sent to the Manchester and Salford Tramway Committees and to the Marquis of Londonderry, President of the Board of Education, on the subject of spitting in public conveyances, and Parliament has been petitioned as to the provision of sanitary conveniences in workshops. The report also rejoices in "the achievement of a portion of the scheme for cottage baths and washhouses, which it has urged upon the baths committee for several years past"—a subject which has from time to time been advocated in the columns of THE LANCET. A new series of "Health Lectures for the People" is now in course of publication, and a series of 15 leaflets on personal care of health, the feeding and care of children, vaccination, infectious diseases, &c., has been revised and reprinted. They are largely circulated and must surely have influence for good. Lectures are given in the course of the year by medical men in the poorer parts of the town, and this work, involving the sacrifice of much time and thought on their part, is evidently appreciated by the committee of the association, for in the report they "desire to record their best thanks to the gentlemen who have so generously given their time for the delivery of these lectures." The report also contains that of the Manchester and Middleton branches of the Smoke Abatement League, and of the Ladies' Health Society in affiliation with the Sanitary Association, and a very practical lecture on Smoke Abatement by Dr. William Graham, medical officer of health of Middleton and chairman of the Smoke Abatement League. The association is doing good work on a very small income and the committee again make an urgent appeal for increased support. The annual income from all sources is under £140, and another £100 a year would render possible "a general extension of the educational work of the association" Perhaps one of the most useful functions it has served has been to act as an example to other towns, many of which have formed sanitary associations of their own.

THE EXPECTORATION IN CHRONIC ENGORGEMENT OF THE LUNGS.

IN the sputum of patients suffering from the pulmonary engorgement resulting from cardiac failure certain cells, called by some German authorities cardiac failure cells, are not infrequently found and have been supposed to be of some diagnostic value as an indication of the existence of cyanotic

induration of the lungs. These cells are not unlike large phagocytes and are by some so regarded; they are of rounded or oval form, having a diameter usually of from 20 μ to 30 μ, but it may in some cases be as much as 50 μ, and they possess two or three nuclei and a number of pigment granules of a yellowish-brown colour. Strümpell regarded them as leucocytes which had taken up the pigment of degenerated red blood corpuscles. By others they have been regarded as cells from the alveolar walls and Sommerbrodt has described them as "brown alveolar epithelial cells." Dr. Rabajoli in the *Gazzetta degli Ospedali e delle Cliniche*, 1902, No. 35, gives a critical summary of previous work, together with the results of his own observations and researches, arriving at the following conclusions: that these cells are to be found in the sputum of patients suffering from inflammatory affections of the broncho-pulmonary apparatus, and much more abundantly in the sputum of patients with cardiac failure due to valvular disease. He thinks that they have little diagnostic value and no prognostic significance, as some writers have claimed for them.

DIARRHŒA AND POLLUTED WATER.

AT a recent meeting of the Chelmsford rural district council Dr. J. C. Thresh, the county medical officer of health, presented a report on an extensive outbreak of diarrhœa which had recently prevailed in the borough of Chelmsford and a portion of the rural district. The epidemic commenced suddenly on July 25th and terminated as suddenly about August 25th. During this period it is estimated that 1400 persons were attacked and 14 deaths occurred. The disease affected all classes and all ages, but only proved fatal to young children, with one exception. The epidemic was limited in the rural district to a village deriving water from the Chelmsford mains, while in the borough it was limited to that portion deriving water from the same mains. One part of the borough supplied with water from a different source did not suffer from any excessive prevalence of diarrhœal disease, nor was there any excessive prevalence in any of the suburbs of Chelmsford deriving water from other than the implicated source. An inspection of the waterworks showed that water was pumped from a deep well into a large uncovered tank which permitted of road washings and garden soil being carried into it during heavy rains, and Dr. Thresh attributes the outbreak to the washing of such filth into the tank on July 23rd, when over two inches of rain fell in the 24 hours. An examination of the tank showed a deposit on the bottom consisting of soil, worms, &c. The water came early under suspicion, but analyses of samples taken from the various sources gave no indication of pollution. Water taken from the mains, however, showed undoubted signs of serious bacterial pollution. The water committee on August 23rd had the implicated reservoir cut off and the epidemic at once ceased. Limited outbreaks of diarrhœa attributed to polluted water are not uncommon but rarely have such epidemics as this been recorded. Imperfectly protected service reservoirs and tanks exist in many parts of the country and the lesson taught by this outbreak is that steps should be immediately taken to prevent the access of possibly contaminated surface water.

THE report of the medical officer of health of Cape Colony states that for the week ending August 22nd no case of plague in human beings was discovered. Plague-infected rats, however, were found at East London and at King William's Town. As regards the Mauritius a telegram from the Governor to Mr. Chamberlain, received at the Colonial Office on Sept. 11th, states that for the week ending Sept. 10th there were 23 cases of bubonic plague and 17 deaths from the disease. As regards Hong-Kong there were 1 case of plague and 1 death for the week ending Sept. 5th.

THE annual exhibition of pathological specimens added to the St. George's Hospital Museum during the past year will be on view from Oct. 1st to 17th, between the hours of 10 A.M. and 5 P.M. A description will be attached to each specimen but the curators will be pleased to demonstrate them to anyone interested.

AT the next meeting of the Society for the Study of Inebriety to be held on Tuesday, Oct. 13th, at 8 P.M., in the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, W., Sir William J. Collins will open a discussion on the Institutional Treatment of Inebriety.

IN recognition of his services in connexion with the Kano-Sokoto Expedition Mr. William Henry Langley, Deputy Principal Medical officer, Protectorate of Northern Nigeria, has been appointed Companion of the Order of St. Michael and St. George.

THE annual report of the Registrar-General of England and Wales has just been issued.

ANNUAL REPORT (1901-02) OF THE MEDICAL OFFICER OF THE LOCAL GOVERNMENT BOARD.[1]

I.

IN the course of last week we received a Blue-book of which the above is the official title but which is in reality the latest issued number of the series of Public Health Reports originally made famous by the writings of Sir John Simon—a series of which it is no exaggeration to say that in any other language as well as in our own it stands absolutely without a rival. The successive numbers are eagerly sought for and as eagerly studied—not in England alone, but in every civilised country where the health of the people is regarded as a matter for State concern and responsibility. We are therefore not surprised to find from an official memorandum accompanying this report that the limited number of copies now available for distribution is already far short of the demand. The present volume is from the pen of Mr. W. H. Power, C.B., F.R.S., and fully maintains the high character of its predecessors. It is a comprehensive exposition of the state of public health in England of great value both for the guidance of the English legislature and for the instruction of medical officers of health throughout the country.

We propose to notice the subject matter before us under the following headings: *(a)* vaccination; *(b)* sanitary administration; and *(c)* auxiliary scientific investigations. Mr. Power opens his introductory summary on vaccination and revaccination with the now familiar table showing among other details the proportion in each 100 births: (1) "of children vaccinated"; and (2) "of children not finally accounted for." But with respect to the latter section he remarks that whilst it gives statistical information regarding obedience to the vaccination laws it does not, as formerly, afford accurate measure of abstention from infantile vaccination. The parent obtaining in respect of the vaccination of his infant a certificate of "conscientious objection," and the parent securing a certificate of successful vaccination, alike satisfy the law, and for routine statistical purposes their children are *finally accounted for*. The first effect, therefore, of the retrogressive legislation of 1898 has been to destroy the comparative value of the long chain of evidence which for years past has been accumulating concerning the beneficent influence of Jenner's great discovery as a prophylactic against small-pox. In

[1] Thirty-first Annual Report of the Local Government Board. Supplement containing the Report of the Medical Officer for 1901-02. London: Eyre and Spottiswoode, 1903. (Cols. 1344.) Price 6s. 9d.

these circumstances it is fortunate that a way has been found whereby statistical proof may still be given of the degree in which infantile protection against small-pox has been secured in recent as compared with former years by what remains on the statute-book of legal provision for the enforcement of primary vaccination. Mr. Power gives a new table (Appendix A, No. 3) in which "exempted infants" (by which term are presumably meant the off-spring of so-called "conscientious objectors") are classed with infants "postponed," removed, and otherwise unaccounted for, so that comparison may be made on the percentage of births in each instance between periods of time before and after the enactment of the new law as to amounts of vaccination and of revaccination among infant populations.

From Mr. Power's prefatory remarks we extract the following summary of the above-mentioned table, which shows (1) that during the long period occupied in taking evidence by the Royal Commission on Vaccination rejections by parents of infantile vaccination steadily increased; (2) that such rejections culminated in 1898, in which year the new law was enacted; and (3) that after this date acceptance of infantile vaccination began generally, and for the most part largely, to increase. The appended summary illustrates these points for England and Wales as a whole and also for the metropolis in contrast with the remainder of the country:—

	Percentage of births remaining unvaccinated in—			
	1893-97	1898	1899	1900
England and Wales	21·0	26·6	20·3	19·9
,, less metropolis ...	20·5	25·4	19·4	18·7
Metropolitan unions	23·9	34·4	28·7	26·8

Examination of these figures shows that, except as regards London, the year 1900 witnessed an increase in infantile vaccination as compared with the five years preceding the enactment of the new law. We further note that metropolis and provinces alike show a conspicuous improvement since 1898. Mr. Power tells us that, as compared with the rest of the country, London occupies a disadvantageous position in respect of the protection of its child population against small-pox. For though, he says, "the metropolis as a whole has exhibited since 1898 increasing acceptance of infantile vaccination, it remained in 1900, as regards percentage of births vaccinated, far behind the rest of the country. And further, London exhibited in 1900 an amount of abstention from vaccination greater even than in the five years antecedent to enactment of the new law. In 1893-97 abstention from vaccination in the metropolis amounted to 23·9 per cent. of the births; in 1900 the figures were 26·8 per cent."

Certain of the metropolitan unions are properly referred to as "offenders" for the sufficient reason that in the year 1900 defect of protection of infants against small-pox was due, not to "conscientious objection" on the part of parents, but to neglect by parents of the duties imposed upon them by the legislature, or to default of vaccination authorities and their officers in enforcement of the law. The chief offenders in this sense were the metropolitan unions of Mile End, Shoreditch, Bethnal Green, Poplar, Stepney, Hackney, St. Giles, St. George-in-the East, St. Pancras, Holborn, and Southwark, in all of which unions the proportion of children remaining unprotected by vaccination was in excess of even the high average for London as a whole. Conspicuous among extra metropolitan counties who are mentioned as responsible for serious neglect in the matter of infantile vaccination are Leicester, Bedford, Northampton, Derby, Wilts, Gloucester, and Radnor, all of which exhibit in 1900 proportions of unvaccinated births in excess of 30 per cent. The report contains a series of tables in which for each of the seven counties above mentioned the particular unions are set forth that have been responsible statistically for degradation of whole county areas in the matter of infant protection against small-pox. With respect to these Mr. Power continues: "But among the unions constituting counties thus unfavourably circumstanced to resist epidemic small-pox there is not observed, as is largely the case in the metropolis, uniform disregard of the law. Not all of these provincial unions have, as have many London unions, abstained alike from vaccination and from conscientious objection. In the provinces, and often within the limits of the same county, there are to be found unions liable to small-pox among their infants in diametrically opposite circumstances—unions, that is, in which parents have satisfied the law largely by obtaining exemption certificates, and unions in which parents, by connivance very often of the guardians, have been by way of disregarding the law altogether." The foregoing statements deliberately made to the President of the Local Government Board by the officer charged with the supervision of vaccination throughout the country is indeed a serious impeachment of the Poor-law authorities, who at present are statutorily appointed to protect the infantile population of England against the ravages of small-pox. We have, however, here still further support to the contention which we have repeatedly advanced in these columns and which we now once more repeat—that the Poor-law guardians are utterly unfit for the duties intrusted to them by the legislature and that the vaccination arrangements for the whole country, which have for their sole object the preservation of the public health, should be divorced entirely from Poor-law associations and relegated to the sanitary authorities, who have in other respects already proved themselves willing and able custodians of the health of the community.

We fully agree with Mr. Power in the opinion that the sole redeeming feature in the statistics which he is able to furnish with respect to this subject consists in the fact that since the passing of the Vaccination Act, which received the Royal assent in 1898, the proportion of infants remaining unvaccinated in England and Wales has decreased, in many cases considerably. From which it may, we trust, be inferred that fathers and mothers generally are now becoming better informed concerning the merits and demerits of the so-called vaccination controversy.

(To be continued.)

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8390 births and 4575 deaths were registered during the week ending Sept. 12th. The annual rate of mortality in these towns, which had been 15·7, 16·0, and 15·7 per 1000 in the three preceding weeks, rose again to 15·8 per 1000 last week. In London the death-rate was 15·2 per 1000, while it averaged 16·1 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 5·0 in Bournemouth, 6·7 in Hornsey, 8·1 in Burton-on-Trent, 8·9 in Croydon and in Smethwick, 10·4 in Reading and in Swansea, 10·6 in King's Norton, and 10·8 in Walthamstow; the highest rates were 20·8 in Tynemouth, 20·9 in Hull, 22·0 in Sunderland, 22·1 in St. Helen's, 22·3 in Bootle, 22·5 in Middlesbrough, 23·0 in Grimsby, 24·1 in Stockton-on-Tees, 26·7 in Stockport, and 27·7 in Wigan. The 4575 deaths in these towns last week included 924 which were referred to the principal infectious diseases, against 1006, 1060, and 973 in the three preceding weeks; of these 924 deaths, 721 resulted from diarrhœa, 66 from whooping-cough, 37 from "fever" (principally enteric), 36 from scarlet fever, 35 from diphtheria, 28 from measles, and one from small-pox. No death from any of these diseases was registered last week in Croydon, Hastings, Bournemouth, Burton-on-Trent, King's Norton, Smethwick, Halifax, or West Hartlepool; while they caused the highest death-rates in West Ham, Aston Manor, Grimsby, Bootle, Wigan, Sheffield, Stockton-on-Tees, and Sunderland. The greatest proportional mortality from measles occurred in Ipswich and Warrington; from diphtheria in Tynemouth; from whooping-cough in Leyton, Aston Manor, and Merthyr Tydfil; from "fever" in Bolton; and from diarrhœa in West Ham, Grimsby, Bootle, Wigan, Burnley, Sheffield, Hull, Stockon-on-Tees, Sunderland, and Rhondda. The mortality from scarlet fever showed no marked excess in any of the large towns. One fatal case of small-pox was registered in Liverpool, but not one in any other of the large towns. The Metropolitan Asylums hospitals, contained 46 small-pox patients on Saturday last, the 12th inst., against 45, 52, and 57 on the three preceding Saturdays; nine new cases were admitted during last week, against 13, 11, and six in the three preceding weeks. The number of scarlet fever cases under treatment in these hospitals and in the

London Fever Hospital, which had been 1797, 1774, and 1796 at the end of the three preceding weeks, had declined again to 1772 at the end of last week; 212 new cases were admitted during the week, against 225, 199, and 229 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 120, 114, and 123 in the three preceding weeks, declined last week to 122, and were slightly below the number in the corresponding period of last year. The causes of 53, or 1·2 per cent., of the deaths in the 76 large towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Leicester, Nottingham, Bradford, and in 42 other smaller towns; the largest proportions of uncertified deaths last week were registered in Leyton, Warrington, Rochdale, Halifax, and South Shields.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 15·1, 15 1, and 16 6 per 1000 in the three preceding weeks, declined again to 14·4 per 1000 during the week ending Sept. 12th and was 1·4 per 1000 below the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 8·5 in Leith and 12·7 in Edinburgh, to 18·9 in Paisley and 20·1 in Perth. The 470 deaths in these towns included 52 which were referred to diarrhœa, nine to whooping-cough, seven to "fever," six to measles, two to diphtheria, and one to scarlet fever, but not one to small-pox. In all, 77 deaths resulted from these principal infectious diseases last week, against 96, 90, and 88 in the three preceding weeks. These 77 deaths were equal to an annual rate of 2·4 per 1000, which was 0·8 per 1000 below the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of diarrhœa, which had been 65, 58, and 58 in the three preceding weeks, further declined last week to 52, of which 21 occurred in Glasgow, 10 in Dundee, nine in Edinburgh, six in Aberdeen, three in Greenock, and two in Paisley. The deaths from whooping cough, which had been nine, seven, and nine in the three preceding weeks, were again nine last week, and included seven in Glasgow. The fatal cases of "fever," which had been four and ten in the two preceding weeks, declined again last week to seven, of which four were registered in Dundee and three in Glasgow. The deaths from measles, which had been six, eight, and four in the three preceding weeks, rose again to six last week and included five in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 51, 51, and 54 in the three preceding weeks, declined again last week to 52, and were 30 below the number in the corresponding period of last year. The causes of 13, or nearly 3 per cent., of the deaths registered in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 22·8, 23·1, and 15·4 per 1000 in the three preceding weeks, rose again to 18·7 per 1000 during the week ending Sept 12th. During the past four weeks the death-rate has averaged 20·0 per 1000, the rates during the same period being 14 5 in London and 13·8 in Edinburgh. The 136 deaths of persons belonging to Dublin registered during the week under notice showed an excess of 24 over the number in the preceding week and included ten which were referred to the principal infectious diseases, against 12, 18, and 16 in the three preceding weeks; of these, seven resulted from diarrhœa and one each from diphtheria, from whooping-cough, and from "fever," but not one from small-pox, measles, or scarlet fever. These ten deaths were equal to an annual rate of 1·4 per 1000, the death-rates last week from the principal infectious diseases being 3·2 in London and 1·8 in Edinburgh. The fatal cases of diarrhœa, which had been ten, nine, and ten in the three preceding weeks, declined again last week to seven. The 136 deaths in Dublin last week included 29 of children under one year of age and 36 of persons aged 60 years and upwards; the deaths of infants corresponded with the number in the preceding week, while those of elderly persons showed a marked increase. Nine inquests cases and four deaths from violence were registered, and 46, or about one-third, of the deaths occurred in public institutions. The causes of nine, or nearly 7 per cent., of the deaths registered in Dublin last week were not certified.

VITAL STATISTICS OF LONDON DURING AUGUST, 1903.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 5 5 per 1000 of the population, estimated at 4,613,812 persons in the middle of the year. In the three preceding months the rates had been 6·0, 6·0, and 6·4 per 1000 respectively. The rates were considerably below the average in Chelsea, the City of Westminster, Hampstead, Camberwell, Greenwich, and Lewisham, while they showed the largest excess in St. Marylebone, Hackney, Finsbury, Stepney, and Deptford. The prevalence of small-pox showed a marked diminution from that recorded during July; of the 39 cases notified last month 15 belonged to Lambeth, nine to Battersea, six to St. Pancras, and three to the City of Westminster. The Metropolitan Asylums hospitals contained 57 small-pox patients at the end of August, against 60, 57, and 66 at the end of the three preceding months; the weekly admissions averaged nine last month, against 13, 12, and 15 in the three preceding months. Scarlet fever was slightly less prevalent during August than it had been in the preceding month; the greatest proportional prevalence of this disease occurred in Paddington, St. Marylebone, Finsbury, the City of London, Stepney, and Deptford. The number of scarlet fever patients in the Metropolitan Asylums hospitals, which had been 1738, 1614, and 1697 at the end of the three preceding months, had risen again to 1754 at the end of last month; the weekly admissions averaged 211 during August, against 226, 195, and 234 in the three preceding months. The prevalence of diphtheria showed a considerable decline last month as compared with other recent months; among the various metropolitan boroughs this disease was proportionally most prevalent in St. Pancras, Hackney, Finsbury, Poplar, Deptford, and Greenwich. There were 716 diphtheria patients under treatment in the Metropolitan Asylums hospitals at the end of last month, against 808, 781, and 840 at the end of the three preceding months; the weekly admissions averaged 94, against 120, 119, and 130 in the three preceding months. The prevalence of enteric fever was considerably in excess of that recorded in the preceding month; the greatest proportional prevalence of this disease occurred in Hampstead, Stoke Newington, Hackney, the City of London, Stepney, and Greenwich. The number of enteric fever patients under treatment in the Metropolitan Asylums hospitals, which had been 51, 88, and 119 at the end of the three preceding months, had further risen to 172 at the end of last month; the weekly admissions averaged 27, against ten, 17, and 18 in the three preceding months. Erysipelas was proportionally most prevalent in St Marylebone, Stoke Newington, Holborn, Bethnal Green, Southwark, and Bermondsey. The 14 cases of puerperal fever notified last month included three in Fulham, three in Battersea, and two in Hackney.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various boroughs, the deaths occurring in public institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the four weeks ending August 29th the deaths of 4779 persons belonging to London were registered; these deaths were equal to an annual rate of 13·5 per 1000, against 14·2, 12 9, and 12·5 per 1000 respectively in the three preceding months. The lowest death-rates in London last month were 8·7 in Hampstead, 10 1 in Lewisham, 10·8 in Stoke Newington, 11 0 in Wandsworth, and 11·2 in Woolwich; the highest rates were 15 5 in Bethnal Green, 16 3 in Southwark, 16 4 in Bermondsey, 18·2 in Stepney, 19·6 in Finsbury, and 21·2 in Shoreditch. The 4779 deaths from all causes included 827 which were referred to the principal infectious diseases; of these, 81 resulted from measles, 31 from scarlet fever, 40 from diphtheria, 55 from whooping-cough, 19 from enteric fever, two from simple continued fever, 599 from diarrhœa, and not one from either small-pox or typhus fever. The lowest death-rates last month from these infectious diseases were recorded in Chelsea, the City of Westminster, Hampstead, Islington, Stoke Newington, the City of London, and Woolwich; and the highest rates in

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING AUGUST, 1903.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1903.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.										Deaths from all causes.	Death-rate per 1000 living.	Deaths of infants under one year to 1000 births.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.			
LONDON	4,613,812	39	903	474	—	194	7	14	313	—	1944	5·5	—	81	31	40	55	—	19	2	599	827	2·3	4779	13·5	144
West Districts.																										
Paddington	146,032	—	44	6	—	3	—	—	9	—	62	5·5	—	2	2	1	1	—	—	—	10	16	1·4	141	12·6	118
Kensington	178,409	—	39	18	—	6	—	—	11	—	74	5·4	—	4	3	3	2	—	—	—	29	41	3·0	175	12·6	203
Hammersmith	115,803	1	23	6	—	5	1		6	—	43	4·8	—	—	—	—	—	—	—	—	24	24	2·7	102	11·5	144
Fulham	147,780	—	29	19	—	6	—	3	8	—	65	5·7	—	3	1	1	—	—	2	—	54	61	5·4	169	14·9	192
Chelsea	74,169	—	13	4	—	—	—	—	5	—	22	3·9	—	—	—	—	—	—	—	—	5	5	0·9	75	13·2	148
City of Westminster	179,052	3	17	9	—	6	—	—	7	—	42	3·1	—	5	—	—	2	—	—	—	7	14	1·0	159	11·6	129
North Districts.																										
St. Marylebone	131,234	—	38	17	—	1	1	—	16	—	73	7·3	—	1	1	2	—	—	—	2	9	15	1·5	137	13·6	87
Hampstead	85,197	—	13	2	—	6	—	—	4	—	25	3·8	—	—	—	—	1	—	1	—	—	2	0·3	57	8·7	55
St. Pancras	235,716	6	36	38	—	6	—	—	18	—	104	5·8	—	8	3	2	4	—	1	—	20	38	2·1	265	14·7	126
Islington	339,137	1	72	29	—	13	—	—	12	—	127	4·9	—	5	1	2	5	—	—	—	12	25	1·0	320	12·3	116
Stoke Newington	52,069	—	4	3	—	4	—	1	6	—	18	4·5	—	—	—	1	—	—	1	—	1	3	0·8	43	10·8	77
Hackney	224,082	—	47	37	—	51	3	2	18	—	158	9·2	—	5	1	4	2	—	3	—	30	45	2·6	221	12·9	143
Central Districts.																										
Holborn	57,845	—	14	2	—	2	—	—	9	—	27	6·1	—	1	—	—	1	—	—	—	3	5	1·1	56	12·6	66
Finsbury	99,717	—	33	13	—	4	—	—	4	—	54	7·1	—	7	2	—	1	—	1	—	14	25	3·3	150	19·6	152
City of London	24,539	—	8	2	—	2	—	—	1	—	13	6·9	—	—	—	—	—	—	—	—	1	1	0·5	28	14·9	200
East Districts.																										
Shoreditch	117,513	—	20	10	—	4	—	—	7	—	41	4·5	—	3	1	1	4	—	—	—	57	66	7·3	191	21·2	305
Bethnal Green	130,028	1	33	13	—	2	—	1	17	—	67	6·7	—	1	1	4	1	—	—	—	20	27	2·7	155	15·5	142
Stepney	302,153	1	82	36	—	19	—	1	23	—	162	7·0	—	10	3	2	11	—	1	—	66	93	4·0	421	18·2	198
Poplar	169,550	1	37	31	—	5	—	—	14	—	88	6·8	—	3	1	4	—	—	1	—	31	40	3·1	188	14·5	168
South Districts.																										
Southwark	207,369	—	39	14	—	7	—	—	20	—	80	5·0	—	3	—	2	1	—	1	—	35	42	2·6	260	16·3	147
Bermondsey	129,801	—	25	15	—	5	—	1	15	—	61	6·1	—	3	2	—	4	—	1	—	19	29	2·9	163	16·4	158
Lambeth	307,711	15	48	27	—	7	1	—	18	—	116	4·9	—	1	2	1	2	—	1	—	36	43	1·8	278	11·8	132
Battersea	173,422	9	32	15	—	3	—	3	9	—	71	5·3	—	7	1	1	3	—	1	—	29	42	3·2	169	12·7	144
Wandsworth	249,678	—	47	30	—	4	—	—	17	—	98	5·1	—	2	1	2	6	—	1	—	18	30	1·6	211	11·0	109
Camberwell	265,562	1	37	12	—	8	—	1	17	—	76	3·7	—	5	3	—	1	—	2	—	23	34	1·7	235	11·5	114
Deptford	112,537	—	30	27	—	2	—	—	7	—	66	7·6	—	1	2	3	1	—	—	—	9	16	1·9	99	11·5	123
Greenwich	99,624	—	3	15	—	4	—	—	4	—	26	3·4	—	1	—	—	1	—	—	—	22	24	3·1	103	13·4	191
Lewisham	136,406	—	14	11	—	3	—	—	2	—	30	2·9	—	—	—	2	—	—	1	—	11	14	1·3	106	10·1	76
Woolwich	121,478	—	26	13	—	4	1	—	9	—	53	5·7	—	—	—	2	1	—	—	—	4	7	0·8	104	11·2	88
Port of London	—	—	—	—	—	2	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

Kensington, Fulham, Finsbury, Shoreditch, Stepney, Poplar, Battersea, and Greenwich. The 81 deaths from measles were 75 below the corrected average number; among the various metropolitan boroughs this disease was proportionally most fatal in the City of Westminster, St. Pancras, Finsbury, Shoreditch, Stepney, and Battersea. The 31 fatal cases of scarlet fever showed a decline of 36 from the average number in the corresponding periods of the ten preceding years; the greatest proportional mortality from this disease occurred in Paddington, Kensington, Finsbury, Bermondsey, and Deptford. The 40 deaths from diphtheria were less than one-third of the corrected average number; this disease was proportionally most fatal in Kensington, Hackney, Bethnal Green, Poplar, Deptford, and Woolwich. The 55 fatal cases of whooping-cough showed a decline of 101 from the average number in the corresponding periods of the ten preceding years; among the various metropolitan boroughs the highest proportional fatality of this disease was recorded in Shoreditch, Stepney, Bermondsey, Battersea, and Wandsworth. The 21 deaths referred to "fever" were 32 below the corrected average number; the "fever" death-rate was highest in Fulham, St. Marylebone, Stoke Newington, and Hackney. The 599 fatal cases of diarrhœa were rather less than half of the average number in the corresponding periods of the ten preceding years; among the various metropolitan boroughs this disease was proportionally most fatal in Hammersmith, Fulham, Shoreditch, Stepney, and Greenwich. In conclusion, it may be stated that the aggregate mortality in London last month from these infectious diseases was nearly 55 per cent. below the average.

Infant mortality in London during August, measured by the proportion of deaths among children under one year of age to registered births, was equal to 144 per 1000. The lowest rates of infant mortality were recorded in St. Marylebone, Hampstead, Stoke Newington, Holborn, Lewisham, and Woolwich; and the highest rates in Kensington, Fulham, the City of London, Shoreditch, Stepney, and Greenwich.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are announced:—Fleet Surgeons: W. H. Patterson to the *Dædalus* (dated Sept. 9th, 1903); H. Meikle to the *President*, lent to the *Spartan* (dated Sept. 12th, 1903); and C. W. Sharples to the *President*, additional, for temporary service at the Royal Navy Rendezvous. Staff Surgeons: W. Hackett to the *Northampton*, for the *Cleopatra*, J. E Coad to the *Audacious* (dated Sept. 9th. 1903), and R Miller to the *President*, for three months' course of hospital study (dated Sept. 15th, 1903); G. A. Dreaper to the *Fox*; E Corcoran to the *Boscawen*, additional, for Portland Sick Quarters. Surgeons: R. D. Jameson to the *Racer*, for Royal Navy Cadets' Sick Quarters, Osborne (dated Sept. 9th, 1903); and A. Davidson to the *Partridge* (dated Sept. 10th, 1903).

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel W. L. Chester to be Colonel, vice Colonel R. Exham, retired (dated August 19th, 1903). Major G. Moir will proceed for service in Madras; Captain W. G. Beyts will proceed for service in the Punjab; Captain G. A. Moore will proceed for service in the Punjab; Captain N. H. Ross has been transferred from the Poona District to the Mhow District; Lieutenant J M H. Conway will proceed to India for duty. Captain H. Herrick has been appointed to the command of the Station Hospital, Satara. Captain A. Crichton Lupton is on temporary duty with the Coldstream Guards, pending embarkation for service abroad. Colonel W. McWatters has resigned the post of Principal Medical Officer, Southern District. Major J. R. Mallins has joined at Woolwich. Lieutenant R. B. Black is seconded for service with the Egyptian Army.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Lieutenant William H Vickery to be Surgeon-Captain (dated Sept. 12th, 1903). The promotion of Surgeon-Lieutenant-Colonel E. Luke Freer, V.D., is antedated to Dec. 24th, 1899.

ROYAL ARMY MEDICAL CORPS (MILITIA).

Lieutenant H. Fox is seconded for service under the Foreign Office (dated August 13th, 1903).

INDIAN MEDICAL SERVICE.

The following Lieutenants to be Captains (dated June 28th, 1903):—James Drummond Graham, Cuthbert Allan Sprawson, Maxwell MacKelvie, William Lapsley, William Henry Cazaley, Percy Alfred Browne, Walter Valentine Coppinger, Alfred Spitteler, James Charles Stewart Oxley, Henry Richard Macnee, Leonard Joseph Montagu Deas, William Mitchell Houston, William David Acheson Keys, George Joseph Grafton Young, James Good, Alexander Chalmers, William Gavin Hamilton, and Samuel Robert Godkin.

INDIAN MEDICAL SERVICE, BENGAL.

Lieutenant-Colonel Zalnoor Alee Ahmed, M.D. Glasg., retires from the service (dated July 19th, 1903) and Lieutenant-Colonel Sorabshaw Hormasji Dantra, M.D. Aberd., retires from the service (dated July 10th, 1903).

VOLUNTEER CORPS.

Royal Engineers: 1st Lancashire: Surgeon-Lieutenant H. Halton to be Surgeon-Captain (dated Sept. 12th, 1903).

VOLUNTEER INFANTRY BRIGADE BEARER COMPANY.

5th London: Surgeon-Captain W. N. Evans, from 1st London Volunteer Infantry Brigade Bearer Company, to be Captain (dated Sept. 12th, 1903).

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

The following announcement is substituted for that which appeared in the *London Gazette* of June 26th, 1903, under the heading "Gordon Volunteer Infantry Brigade Bearer Company":—The Aberdeen Company: The undermentioned gentlemen to be Lieutenants: James Smart (dated June 27th, 1903) and John Wallace Milne (dated June 27th, 1903). The transfer of Lieutenant F. Kelly from the Royal Army Medical Corps (Volunteers) the Aberdeen Company, to the Gordon Volunteer Infantry Brigade Bearer Company, which was announced in the *London Gazette* of August 14th, 1903, is cancelled. The Woolwich Companies: Lieutenant A. H. Minton to be Captain (dated Sept. 12th, 1903).

Under the new order which provides for a special sanitary officer at the headquarters of each military district Major C. J. W. Tatham, R.A.M.C., has been appointed in that capacity to Devonport.

Correspondence.

"Audi alteram partem."

MEDICAL DOCTRINES OF HEREDITY.

To the Editors of THE LANCET.

SIRS,—May I trespass upon your space to draw attention to what seems to me to be one of the important lessons to be drawn from the present keen interest which is being manifested in the subject of the hereditary nature of alcoholism? Whatever may be the views held by particular individuals as to the opinions of Dr. Archdall Reid, expressed in his books and in the present correspondence in THE LANCET, there can be but one opinion as to the enormous importance of the subject and the thanks of the profession are due to Dr. Reid for forcing it upon our attention.

I do not wish to intrude at present in the precise point under discussion; I rather wish to note one of the sidelights of the question, which I think should be attended to in the future. It is impossible to have read the criticisms of Dr. Reid's paper at the recent meeting of the British Medical Association and the subsequent correspondence in THE LANCET without being struck with the extraordinary variety of opinions held upon the biological aspect of the matter. One is forced to the conclusion that heredity and evolution are somewhat nebulous terms to many, and perhaps it is not easy to be very precise in the meanings attached to the former at any rate. The real reason for this is that no systematic attempt is made to teach these subjects in the medical curriculum. I am, of course, aware that every student learns more or less of such problems in biology, but he does so *during his first session*, when he is frequently a mere schoolboy, and whatever little knowledge is then gained is speedily forgotten in the more practical business of the strictly professional subjects for his subsequent examinations. The same remark applies to embryology. How many

men on the day they take their qualification or degree have anything but the vaguest notion of modern scientific research and thought on such subjects as heredity, immunity, and evolution? From personal experience in teaching I should say the number is extremely few. The fault is not the student's; it is simply that he is not taught. And yet nothing is more certain than that the future of medicine is becoming more and more a biological matter and that it is to biological research we must look for the explanation of the most important problems we are called upon to face.

What is the remedy? The defect is in the curricula and the remedy must be applied there. My own opinion is that instead of compelling the student to acquire an enormous number of facts in natural history and botany, which are of no earthly use to him afterwards, a course of lectures on the great *problems* of biology should be substituted, and these lectures should have a special reference to the connexion of these problems with disease. Instead of dismissing biology at the end of the first session with a mere smattering of superficial knowledge, defer the consideration of these important questions until the student has become familiar with some of the facts of medicine and then teach him thoroughly what is known as to the nature of these biological phenomena. In that way he will come to have a really scientific conception of medical science and the knowledge will come to him at a time when its bearing on medicine will be evident. Under the present system these great questions are dealt with too soon or not at all and the student forgets them as soon as possible without ever realising anything of their true significance. Is it any wonder that after some years in medical practice the average man is found to know little or nothing about the most vital questions of his own profession and science?

It cannot be much satisfaction to professors and lecturers on botany and natural history to have to give an elaborate course of lectures to a number of students just through their preliminary examination, knowing, as they must do, that the men have no chance of getting a real grasp of the subject. It would be a real satisfaction to these same teachers to teach the great principles of these subjects to advanced students who could appreciate the bearing of them upon their own special studies. In such a system the practitioner would recognise that the problems of heredity, immunity, and evolution, as applied to disease, faced him at every turn of his work and were indeed the most fascinating of the problems which engaged his attention.

I am, Sirs, yours faithfully,

GERALD R. LEIGHTON, M.D. Edin.,
Professor of Pathology, Royal Veterinary College,
Sept. 7th, 1903. Edinburgh.

To the Editors of THE LANCET.

SIRS,—I deplored in my recent letter that so many of Dr. Archdall Reid's opponents should by their remarks show that they were quite ignorant of that author's works. Amongst these must, from the sixth and seventh paragraphs of his letter of August 29th, be classed Dr. Charles Mercier. Had this gentleman read Dr. Reid's "Alcoholism" these two paragraphs would, I suspect, have never been penned. Surely the least that can be asked of Dr. Mercier is that at any rate he should first make himself acquainted with the works of the gentleman whose views he is apparently so anxious to belittle.

Dr. Mercier's conclusion that Dr. H. Laing Gordon and I support Dr. Reid's views because we are Scotsmen is quite on a par with other of his scientific deductions.

I am, Sirs, yours faithfully,

Sept. 8th, 1903. A. MEARNS FRASER.

To the Editors of THE LANCET.

SIRS,—There are several matters in Dr. Niven's letter dated Sept. 3rd[1] which I should like, with your permission, to notice next week; but as to one matter Dr. Niven makes an appeal in terms so solemn, so urgent, so piteous, that it would be discourteous to postpone the answer, especially as Dr. Niven makes no secret of his opinion that I have no answer to give and that no answer is possible. But for Dr. Niven's impassioned appeal I should certainly not have entered upon this subject, for I think it unlikely that you would care to occupy your correspondence columns with an exposition of the rudiments of biology. If I had to explain the matter to a biology class I should tell them to clean their slates (but not on their pinafores) and take down the following statement:—

Every sexually produced organism is the offspring of two parents. One of these parents is male and is called the father, the other is female and is called the mother. In so far as the characters of the father and mother are alike, the corresponding characters of the offspring almost always reproduce those of both the parents. For instance, if the father and mother each have four legs and one tail the offspring will almost certainly possess four legs and one tail. But as to those characters in which the parents differ, the corresponding characters of the offspring obviously cannot faithfully reproduce those of both parents, and in such cases the characters of the offspring may follow one of several courses. In respect to these characters (these in which the parents differ) the characters of the offspring may (1) resemble either parent to the exclusion of the other (for instance, if the father be white and the mother black the offspring may be wholly white or wholly black); or (2) the offspring may at one time of life resemble one parent and at another the other (it may, for instance, be born white and subsequently turn black); or (3) the differing characters of the parents may be mixed in the offspring, as when the progeny of a white and a black parent is piebald; or (4) the offspring may present, with respect to these characters, a mean or average between the two parents, as though the differing characters were intimately blended together, as when the progeny of a white father and a black mother is a mulatto. Now apply this doctrine to the case of the offspring of a drunken father. The father is, *ex hypothesi*, a drunkard, but one of the counteracting circumstances which Dr. Niven demands, and of whose existence he is incredulous, is the circumstance that the offspring has *two* parents! and the mother may not be a drunkard. She may have as great an abhorrence of drink as Dr. Niven has of a neo-Lamarckian, whatever that may be, or as I have of a mi-quotation. In such a case the offspring may inherit solely the father's propensity for drink or solely the abhorrence of the mother; or he may take after his father at one time of life and after his mother at another; or he may have their qualities blended or averaged and have just a healthy relish for a glass of beer after a long day in the hayfield.

It is perhaps too much to expect that Dr. Niven's researches in heredity, which appear to have been of no very long standing, should have revealed to him a fact so obscure, so recondite, and so seldom recognised as that every child has a mother as well as a father; but if he perseveres he will in time come across another counteracting circumstance, to which I first called attention many years ago, which may save the offspring from being a drunkard and the race from extinction even if both his parents are drunkards. This is the remarkable and powerful tendency that the members of every race evince, in ordinary circumstances, to return to the norm from which their parents have deviated. The children of giants are never so tall nor are the children of dwarfs so short as their parents. This tendency has been investigated by Professor Karl Pearson in an immense number of cases and has by him been measured and expressed in figures as to certain characters. As he very aptly and justly says, "In the tenth generation a man has 1024 tenth great-grandparents. He is eventually the product of a population of this size, and their mean can hardly differ from that of the general population. It is the heavy weight of this mediocre ancestry which causes the son of an exceptional father to regress towards the general population mean; it is the balance of this sturdy commonplaceness which enables the son of a degenerate father to escape the whole burden of the parental ill."

In your next issue I expect to see that Dr. Niven credits me with the belief that every offspring has three parents, or that giraffes lengthen their necks by stretching, or that parents are produced by their own offspring, or something equally absurd. I appeal, therefore, to your readers to take the beliefs of Dr. Niven's opponents, not from what Dr. Niven says, but from the statements of those who best know what these beliefs are—the opponents themselves.

I am, Sirs, yours faithfully,

Catford, Sept. 14th, 1903. CHARLES MERCIER.

To the Editors of THE LANCET.

SIRS,—Will you allow me to apologise to Dr. J. Wiglesworth? I have wrongly represented him as saying that parental drinking causes filial intemperance. Need I

[1] THE LANCET, Sept. 12th, p. 736.

say that this was not willingly done. I remember after reading his first letter turning to "The Foundation of Death" to see how far his views agreed with those of other alienists—e.g., Krafft-Ebing—and must, I suppose, in the process have mixed their opinions. I am deeply grieved and I can only say I am very sorry. I should have liked to be able to leave the above standing by itself, but Dr. Wiglesworth also represents me as saying that I charged him with holding the belief that acquired traits are transmissible. That I never did. I believe if Dr. Wiglesworth will again read the passage where he thinks I make this charge he will at least do me the justice to say that he also has made a mistake.

With regard to the third point where I use the word "special" instead of "general": I do not think that I thereby gain any advantage in this discussion nor do I think that Dr. Wiglesworth loses any. In trying to account for his belief that parental drinking causes filial mental instability, Dr. Wiglesworth represents the germ cell as containing or being composed of numbers of molecules which subserve the development of the various tissues of the body; those for the cerebral centres being the latest formed in time, and therefore more unstable than the others, suffer first from any injurious agent. I stated in my reply that an alteration such as this was simply a variation, or rather that the offspring varied in a *definite* direction; also as the cerebral centres suffered first it did not seem to matter much what term we used. I thought, and I do think, that I was justified in saying a variation was the result and that Dr. Wiglesworth would be in perfect agreement with me, for in THE LANCET of August 1st, p. 340, he says: "If as a result of the development of the germ cells in a vitiated nutrient medium the child resulting therefrom is modified in any direction, however slight, then a definite germinal variation has been produced through the agency of the poison in question." If a variation is produced I can only look upon the resulting offspring as having varied in a definite or special direction. There is, however, no need to labour the point. It is a matter of indifference to me what qualification is used—i.e., whether the influence be general, special, or definite. All I insist on is that a variation has been produced, and variations, as we know, tend to accumulate and to be transmitted. The Darwinian doctrine, so far as I understand it, depends upon (1) increase of organisms in a geometrical ratio; (2) struggle for existence; and (3) variation. Let anyone destroy all that is meant by variation and for me Darwinism is destroyed.

May I add to Dr. Wiglesworth's summary of this discussion that only beliefs have been adduced to support the contention that parental intemperance causes filial mental instability. These have been called in question and demands have been made for proof but without success. It seems that all that we have heard in the past (I am not now referring to Dr. Wiglesworth) as to the transmission of this or that acquired trait has simply been so much chatter. Dr. Wiglesworth has propounded a new theory of evolution; he has also endeavoured to show *how* poisons can produce variations in germ cells from which offspring arise. If he can prove the existence of his molecules and also prove the rôle he makes them play, he will have accomplished an astounding piece of work, the results of which will be far-reaching.

In THE LANCET of Sept. 5th, p. 731, Dr. C. Mercier, in one of his characteristic letters, condescends to indicate one of the "counteracting circumstances which would prevent the giraffe's neck growing as high as the cross of St. Paul's." He has "ballyragged" others for not defining their terms and for not giving proof of their assertions, and yet here we have Dr. Mercier himself in delightful simplicity asserting that the neck would crush the animal. Is this not a flourish without proof? I wonder if Dr. Mercier has ever heard of the correlation of growth or of the co-adaptive variation of all the structures that subserve any given condition? Is there anything more certain than that co-adaptive parts vary together and as natural selection has developed in the structures an immense power of varying under fit stimulation it is absolutely certain that Dr. Mercier, with all his fancied precision, is wrong. Mr Darwin, in "Animals and Plants," vol. ii., p 329, quotes from Mr. Herbert Spencer the case of the "Irish elk with its gigantic horns over 100 pounds in weight" and refers to the "coördinated structures necessary—namely, a thickened skull, strengthened cervical vertebræ, with stronger ligaments, enlarged dorsal vertebræ, powerful fore-legs and feet," &c., indeed, there is hardly one structure in the body capable of varying that would not vary. If it be argued that it would be impossible for all these structures to vary favourably in one individual and that therefore there would be no selection, it must be remembered that superiority in one quality is commonly associated with superiority in other qualities and that selection depends on a general average superiority. Now, suppose a giraffe develops a longer neck under a given amount of stimulation than its progenitors did with the same amount of stimulation, then an extra strain is put on all co-adaptive structures and in them also a proportionate increase in size would result. The length of the neck therefore would depend upon the inborn power to vary under stimulation and the amount of fit stimulation to which it was submitted. As this is so and as the later development of nearly all structures in higher animals is an acquirement, and as what is transmitted is the power to vary in response to stimulation, it follows that there is hardly any limit to which a structure might not grow if required by natural selection. Thus, if it were required, say, for browsing purposes that the head of the giraffe should reach the top of the cross at St. Paul's there is absolutely no reason why it should not do so, and Dr. Mercier cannot disprove it.

Dr. Mercier defines a variation "as a difference between parent and offspring not due to post-natal action of the environment on the offspring." Here, again, there is no definition of terms, but I suppose he means by post-natal what it would mean in medical jurisprudence—live-birth. How delightfully simple and clear everything seems after one gets everything explained. How long must this truth have been "jumping up and hitting every Darwinian in the face" and they did not see it or feel it! Had they only been logicians! Just fancy how easy it all is now! If a man takes small-pox it is an acquirement, but if a child is born with the rash fully developed on him it is a variation; if a man has his arm amputated it is an acquirement, but an intra-uterine amputation is a variation; if a man has an eye gouged out it is an acquirement, but if a child has an eye dislocated by unskilfully applied midwifery forceps it is a variation. Leaving this, however, may I point out to Dr. Mercier that "the whole controversy is" *not* "on the question whether this difference has its root in the original constitution of the germ plasm or whether it may not be due to the action on the germ plasm of its environment."

As regards the legs of the kittens Dr. Mercier says that he used no argument and nothing is more distasteful to him after an argument than a mis-statement of fact. He says that I stated a universal negative and that his simple affirmative destroys it. Well, but does it? Two things which differ in every detail are in reality exactly the same. I am sure that no one but a logician like Dr. Mercier could have discovered that.

I have confined my reply to the things to which I might legitimately claim a right to reply and I may say, in conclusion, though it is always risky to give hostages to futurity, that I am confident that at the end of this controversy I shall have a little more scalp and a little more hair on that scalp left than Dr. Mercier will.

I am, Sirs, yours faithfully,

Liverpool, Sept. 13th, 1903. C. R. NIVEN.

To the Editors of THE LANCET.

SIRS,—Dr. Reid repeats his argument, taking the case of malaria as an illustration, without meeting my objection. I can only suppose that my former letter was obscure. May I therefore explain precisely what I meant? My whole point was to show that "the mean of the whole race," as Dr. Reid puts it, is not necessarily lowered by the influence of alcohol or disease, *even if it does cause degeneracy.* It would be so if the dead counted, but they do not for purposes of reproduction. When a disease—malaria, for instance—attacks a community the elimination of the unfit by death may surely more than counterbalance the degeneracy of the survivors, leaving a higher mean vitality in spite of the injury to them individually. May I give an arithmetical illustration to make it clear? Take a few numbers at random to represent the vitality of individuals—3, 6, 11, 1, 13, 2. The average of these is 6. Subtract 3 from each to represent a diminution of vitality. Three of the numbers fall to zero, illustrating elimination of the unfit, and no longer count. We have left 3, 8, 10, the average of which is 7—higher than before we subtracted 3 from each! The conclusion to

my mind is therefore irresistible that it is at least possible for degeneracy and elimination working together to raise the mean vitality of the whole race and the more virulent the disease the more rapid and complete its evolution and conquest of that disease—not, as Dr. Reid says, its degeneration and extinction.

I am, Sirs, yours faithfully,

Sept. 12th, 1903. C. E. SCUDAMORE.

To the Editors of THE LANCET.

SIRS,—Dr. C. Mercier has hardly grasped the spirit of my apology. I imagine any acquaintance with a sense of humour will enlighten him. By turning to the communication which opened this discussion the readers of THE LANCET will be able to gauge the amount of justification for all this indignation—for these quotations from Shakespeare, these references to Almighty God and worms and black-beetles, and so forth. It is perhaps necessary to add that Dr. Mercier had not entered my thoughts when I wrote it. If he really insists on knowing why I treat him so "haughtily" I suppose I must inform him, however much I may regret the necessity. It is because, in a scientific discussion, he has evaded the real points at issue and committed the unpardonable offence of limiting himself almost solely to small personalities and verbal quibbles. One need not go beyond his last letter to prove this. He denies that he asserted that "alcohol diseases, &c., affecting parents cause offspring to be degenerate." He is quite right, but it is remarkable that he should call attention to the fact. What, then, is his position in this discussion? Has he come in solely to chop logic and for the laudable purposes I have indicated? After a dissertation on courtesy and dignity he proceeds to explain that he has scalped Dr. C. R. Niven and that Dr. H. Laing Gordon and Dr. A. Mearns Fraser agree with me only because we are all Scots. Much space in his letter is occupied by what, for his own sake, I can only hope is an intentional misreading of very plain meanings. Thus, when Dr. Niven stated that no two individuals were exactly alike in any particular he retorted that kittens are alike in having four legs and now asserts triumphantly that he has thereby destroyed Dr. Niven's universal negative. I am surprised he did not add that kittens are alike in being kittens. When I wrote of South Europeans and West Africans as being very temperate the context showed clearly that I was alluding to the inhabitants of countries where alcohol was particularly abundant—the wine and toddy countries. He retorts with a list of all the peoples from Lisbon to Constantinople and Tangiers to Cape Town. I spoke of a patent fact. He announces that by patent I mean closed and asks for information which would about fill an issue of THE LANCET and which I have given elsewhere. I raised a discussion by declaring that medical men are mistaken in supposing that the effects of disease are transmissible and gave my reasons at elaborate length. He elegantly adjures me to abandon "storming, hectoring, and ballyragging," and to try reasoning. No one attempts to refute those reasons, least of all Dr. Mercier, to whom, it appears, argument is abhorrent. His luminous retort is that I have committed a fault in logic. It seems that when I declare a thing to be true and no one is able apparently to controvert me I must not assume it is true. That is *petitio principii*. It is unnecessary to multiply examples, but I am now forced to explain to Dr. Mercier that if he cannot perceive that these ignominious personalities, these pretended misunderstandings of plain meanings, these merely verbal carpings, are not infinitely petty and irrelevant, I can very clearly. I shall be glad to deal with any scientific points that he may raise; indeed, I propose to deal immediately with two or three of these, but in the future I shall leave all questions as to my "haughtiness" and the like alone. I will only add that if he desires to bring my pride to a fall he has but to defeat me on real issues. He has only to prove that any influences, no matter what—disease, alcohol, privation, anything—acting on parents are causes of variations in offspring to render my position humiliating and absurd. After all this is only a preliminary skirmish. I hope before long to call the attention of the readers of THE LANCET to questions of wider interest and deeper import. Imagine my chagrin if I be overwhelmed at a vital point at the very beginning of the campaign.

Now for the scientific points which Dr. Mercier thinks will prove "disconcerting." He believes apparently that the modern giraffe has a long neck because ancestral giraffes stretched their necks and the stretching was transmitted, but that the giraffe's neck is not now as high as the cross of St. Paul's because the weight of it would crush the animal. Has anyone ever heard of a giraffe being crushed by the weight of its neck? We do not know that the individual giraffe can add a cubit to its stature by stretching, but we do know that the muscles, the bones, and the ligaments of an individual grow in size and strength when exposed to increased strain. If, then, the neck is capable of such facile evolution why not the supporting structures? The following is Dr. Mercier's definition of a variation. "By a variation I mean a difference between parent and offspring not due to post-natal action of the environment on the offspring." It appears, then, that if a child be bruised by forceps during delivery the injury is a variation, an inborn trait, but if he be circumcised immediately after the mutilation is an acquirement. The definition is interesting as explaining a good deal in Dr. Mercier's scientific attitude, but unfortunately will be accepted by no one who has a knowledge of the subject. Let me then attempt a definition myself and Dr. Mercier can pick it to pieces if he is able. Without definitions that really define we cannot have clear ideas or a common basis for discussion. An inborn trait (including variation) is one which takes *origin* in the germ plasm. It arises because the germ plasm is so constituted that under fit conditions of fertilisation, shelter, and nutrition, it tends to proliferate into an individual having that trait. An acquirement, on the other hand, does not take *origin* in the germ plasm. It is a modification of an inborn trait caused by the action of the environment on that trait *after* it has begun to develop from the germ plasm.

Dr. Mercier mentioned "bud variations" at Swansea and now seems to imagine that I evaded this point through inability to meet it. As a fact my time was scanty and the objection had already been disposed of many times and thoroughly. Let us take the case of the nectarine. When a gardener has grown a good variety of peach from seed he propagates it by cuttings. A cutting is a detached portion of the tree whence it is taken, and trees thus grown, no matter how numerous or how many in succession, still remain detached portions of the original tree which sprang from a seed. A thousand peach trees in an orchard may each have a thousand twigs and branches. One of those branches may bear nectarines. Since the peach differs from the nectarine the difference must have been caused somehow. But how? Only two ways are conceivable. Either the branch was exposed to external influences (wind, weather, nutrition, &c.) so surprisingly different from what the rest of the branches in the orchard were exposed to that it produced a nectarine instead of a peach, or else that portion of the germ plasm from which that particular branch arose was different originally—i.e., in the seed—from the germ plasm from which the other branches arose. In short, the difference must have been either in external influences or in the germ plasm. Can anyone, except, perhaps, Dr. Mercier, believe that the difference was in the external influences? I cannot do better than quote from Professor Adam Sedgwick's presidential address at Dover to the Zoological Section of the British Association. "In so far as these bud variations are not of the nature of acquired variations produced by a change of external conditions, and disappearing as soon as the old conditions are renewed, they are probably stages in the growth and development of the organism. That is to say they are of the same nature as those peculiarities in animals which appear at a particular time of life, such as a single lock of hair of a different colour from the rest of the hair, the change in the colour of the hair with growth, the appearance of insanity or epilepsy at a particular age. There is nothing more remarkable in a single bud on a tree departing from the usual character at a particular time of life than in a particular hair of a mammal doing the same thing."[1]

"If Dr. Reid means, as he appears to mean,' says Dr. Mercier, "disease and alcohol alone [produce evolution among civilised men], I not only doubt it, but think it preposterous." Yes, I do mean it. But it seems that Dr. Mercier has discovered that religion, laws, languages, commerce, and many other influences also produce evolution. He is not inclined to "swagger" about these discoveries. They jumped up and hit him in the face. Will he then tell us how they produce evolution and what the

[1] Nature, Sept. 21st, 1899, p. 503.

precise nature of that evolution is? I do hope, however, that we shall not be treated to another example of that confusion between evolution and mere development, which depends on a confusion of the inborn with the acquired and which is such a nuisance in so many popular treatises.

The letter of "M.D. Edin." is a little puzzling. If he means to imply, as I think he does, that heredity lies at the root of every social and moral question I agree with him. Hence the importance of the study. But if he means to imply, but of this I am very doubtful, that we should suppress the truth for fear of disturbing some of the arguments which clergymen have founded on error then I disagree very strongly. That would be profoundly immoral.

To Mr. Sidney Vines I need only reply that I have "no practical suggestion whatever to make concerning the prevention of drunkenness" at present. We are discussing quite a different question.

I am, Sirs, yours faithfully,

Southsea, Sept. 12th, 1903. G. ARCHDALL REID.

OBSERVATIONS ON MASTICATION.

To the Editors of THE LANCET.

SIRS,—Dr. Harry Campbell's objections to the use of antiseptic tooth powders and mouth washes have been assailed as being "quite contrary to belief, acknowledged practice, and observation." We know that they are contrary to belief and acknowledged practice, but to say that they are contrary to observation is wholly unjustifiable. Indeed, clinical evidence of the value of antiseptic mouth washes is conspicuous by its absence and the absolute failure of acknowledged practice to check the ravages of dental caries at the present day is one of the most dismal facts which we are compelled to recognise. I do not know that any observations or tabulated results have been recorded to show that those people who use such antiseptic methods are in any way more free from caries than others. On the other hand, the evidence is overwhelming that peoples who consume food which compels efficient mastication are relatively free from dental troubles. In fact, dental caries is inversely proportional to the amount of mastication. I have particularly noticed that patients who carefully adopt the acknowledged practice are not only specially subject to "abrasion," "erosion," and recession of the gums, but are, as a rule, most liberally supplied with carious cavities or "fillings." I feel sure that the use of antiseptic mouth washes is only sanctioned by purely theoretical considerations. Dr. W. D. Millar showed that dental caries was a chemico-parasitical process and immediately he had done so he and the whole dental profession at once embraced the *theory* that we must destroy the micro-organisms and neutralise the acid in order to avoid the disease. It never was surmised that this chemico-parasitical process which causes the disintegration of the teeth was but an intensification or perversion of a normal process. Consider the nature of the micro-organisms of the mouth. Some are acid producers, some are liquefiers, and some produce acid or liquefy according to the medium in which they exist. It is obvious that those bacteria which liquefy gelatin and other albuminoid substances must be of great importance in rendering shreds of foodstuffs soluble and so helping to clean the buccal cavity, and within limits the acid producers may have a similar function. In fact it would seem impossible to do without the mouth bacteria as there is no ferment in the mouth capable of digesting the albuminous shreds and particles which otherwise would be bound to accumulate between and about the teeth. It may be said that at least we would be well to be without a considerable proportion of the acid-producing bacteria, for without acid it is impossible to have dental caries. No doubt this is so. But this result is best obtained by efficient mastication, for food which requires considerable mastication calls forth a corresponding flow of saliva which gets thoroughly incorporated with the food. The ptyaline converts the starch into a soluble form, while the mastication expresses it from the rest of the bolus. Thus, therefore, the starchy matter is more or less thoroughly swallowed, while the remaining part is being more completely masticated. By this means the smallest possible residue tends to lodge about the teeth and what little does remain, being almost devoid of starch, allows the bacteria which liquefy to predominate while preventing the multiplication of the acid-producing bacteria. If, however, food—especially starchy food—is taken in a soft form the flow of saliva is, relatively to the amount of starch, but inefficiently stimulated. The starch is not fully converted and swallowed but remains plastered, as it were, into all the crevices in and about the teeth. Furthermore, the chronic lack of efficient stimulation of the salivary glands engendered by relatively soft foods leads, no doubt, to a corresponding lack of development and output of ptyaline. Now if there is a relatively great amount of starch left about the teeth can we wonder that the acid-producing bacteria largely preponderate and play havoc with the teeth?

Of course, in exceptional circumstances, as during illness or after a very improper diet, the use of antiseptics may be advocated, "but under normal conditions their use is, I believe, to be deprecated."

I am, Sirs, yours faithfully,

Wimpole-street, W., Sept. 12th, 1903. J. SIM WALLACE.

To the Editors of THE LANCET.

SIRS,—The following experiment may be of interest during the controversy.

Eat a small piece of bread and notice the doughy feeling which it attains during the process. Brush the teeth with a solution of odol (I used the peppermint variety). Then eat another piece of bread and notice that the doughy feeling does not occur to anything like the same extent even after prolonged mastication. As a matter of fact, the gullet becomes aware that the bread is still quite granular when it is swallowed. This would seem to indicate an arrest in the production of ptyaline and a failure in the conversion of the starch, but the solution of that question I leave to other hands. It is, at least, a result of the use of a powerfully antiseptic tooth cleanser. I am, Sirs, yours faithfully,

Guernsey, Sept. 14th, 1903. J. AIKMAN.

UMBILICAL CALCULUS AND THE URACHUS.

To the Editors of THE LANCET.

SIRS,—The report published in THE LANCET of Sept. 12th, p. 747, of a Case of Umbilical Calculus by Mr. J. R. Harper and Dr. C. G. Seligmann is of considerable importance. It will interest those gentlemen to know that besides Shattock and Dean's cases about a dozen others have been collected by Ledderhose, Pernice, Volkmann, and Otto Hahn, whose article, "Ein Nabelkonkrement von Taubeneigrösse," was published three years ago in the *Beiträge zur klinischen Chirurgie* (vol. xxvi., p. 80). The umbilical calculus in Hahn's case measured 30 by 20 millimetres and was of the size and shape of a pigeon's egg. The patient, a man, aged 43 years, was of dirty habits—a common clinical feature, Hahn remarks, in all reported cases.

In relation to umbilical calculus is the question of urachal fistula, which I suggested in the article "Urachus" in the "Encyclopædia Medica." Although the usual cause is no doubt irritation from accumulation of dirt it is possible that in some instances the upper portion of the canal of the urachus remains open, communicating by a minute orifice easily overlooked with the surface of the integument in the umbilicus. The patent canal would then be liable to infection, so that it would discharge morbid material into the umbilicus which would mix up with epidermis and foreign matter. Spencer Wells found urinary (?) concretions in the canal of a urachus which was closed at both ends and Wutz twice detected suppurative inflammation in a minute cystic dilatation representing an unobliterated portion of the urachal canal. Such conditions being known to exist we can understand how, if the uppermost part of the canal remained open, it might inflame and cause the development of concretions in the umbilicus.

I have repeatedly observed, when removing abdominal tumours, incomplete closure of the urachal canal and therefore I suspect that the urachus is more often a source of local mischief than is generally supposed. No doubt a well-established urachal fistula gives rise to very prominent symptoms and a vesical calculus in the dilated urachal canal, as in the case of Paget of Leicester, would never be mistaken for an umbilical calculus. Still, it is possible that in exceptional cases the urachal canal remains patent, though extremely narrow, throughout, so that when the bladder is unusually distended a few drops of urine might occasionally pass up it and irritate the integuments of the umbilicus. The

composition of an umbilical calculus shows, I admit, that urine has no direct share in its development, hence the former explanation of the relations of a calculus of this kind to patency of the urachal canal is more likely to be correct.

I am, Sirs, yours faithfully,

Sept. 12th, 1903. ALBAN DORAN.

THE TREATMENT OF GOITRE BY THE USE OF DISTILLED OR RAIN WATER.

To the Editors of THE LANCET.

SIRS,—I think it would be premature at present to conclude that the use of *boiled* water is equally efficacious with that of distilled or rain water in these cases. The actual agent of mischief is confessedly unknown, a matter of surmise only. If of mineral origin, as thought by many, boiling cannot with certainty destroy it.

Many cases of goitre are very evanescent. I have seen cases lasting only a few weeks getting well naturally without any treatment or alteration in drinking water. To base any conclusions as to treatment upon such cases would obviously be fallacious and may have led to error in the past. But the cases which I described in THE LANCET of July 18th, p. 185, were quite of a different category. They had existed for years unrelieved, giving rise to symptoms of such a serious and alarming character that a dangerous operation was contemplated, and this in spite of all kinds of treatment in different hands and (at least one of them) in different countries, with different water-supplies. The evidence here is incontestable, and until we get equally satisfactory evidence in favour of boiled water only we had better stick to what we indubitably *know*. Moreover, boiled water is unpleasant, whereas the aerated distilled water which I described is remarkably pleasant to drink. This is a matter of no small importance where the treatment has to be continued for many months, with often very slowly progressing improvement, so that the patient gets tired and doubtful and open to the suggestions of friends that the treatment "is doing no good" and that he "had better try something else."

As illustrating the fact that the treatment by the use of distilled or rain water is really new to a large majority at least of medical men, I may mention that I have had a letter within the last few days from a well-known physician and lecturer on materia materia and therapeutics to a large hospital and medical school for many years, a Fellow of the Royal Society (I will not give his name without permission). In this letter after expressing the interest with which he has read the articles in your columns on the subject he goes on to say, "I cannot regard the influence of rain water as *negative*, it must be *positive*. Can it be that there is some hidden form of ozone in the rain water?" Of course, this cannot have anything to do with the real explanation, for it cannot apply to distilled water, of which fact the learned professor must have momentarily lost sight. But it shows that the idea was entirely new even to one accustomed throughout his life to consider and to ponder on the subjects of materia medica and therapeutics on which he lectured.

I am, Sirs, yours faithfully,

Lancaster, Sept. 13th, 1903. C. A. RAYNE, M.D. Lond., &c.

A CASE OF PRESUMED PTOMAINE POISONING.

To the Editors of THE LANCET.

SIRS,—May the case recorded in THE LANCET of Sept. 12th, p. 755, under the above heading not have been one of perforated gastric ulcer? Against its having been one of ptomaine poisoning is the fact that the patient alone was affected. The absence of diarrhœa is also, I think, significant. On the other hand, perforation of a gastric ulcer usually occurs after a full meal. If my view is correct, then I believe that Dr. T. B. Broadway's patient had at first only a slight perforation but that the subsequent retching and vomiting increased the extent of the rupture and led to acute general peritonitis. The writer states that his patient did not show abdominal tenderness until the fourth day, but at the very outset of the history he tells us that when first seen (on the second day of the illness) the patient "complained of tenderness about the epigastrium."

My object in writing is to point out the danger of giving even ice by the mouth in such cases. It is not, perhaps, sufficiently recognised that the gastric mucous membrane does not immediately absorb even water. Undoubtedly it is safer to feed the patient entirely per rectum. Such cases when they occur in private practice are difficult to manage as removal to hospital is not always free from danger and operation is often impossible in the patient's home surroundings. At the same time the patients in some of these cases recover if seen early when the perforation is small and mouth-feeding is entirely stopped.

I am, Sirs, yours faithfully,

Edinburgh, Sept. 12th, 1903. JAMES BURNET.

A PROBLEM IN MEDICO-LEGAL PSYCHOLOGY.

To the Editors of THE LANCET.

SIRS,—I have read with interest the letters in THE LANCET tending to strengthen my surmise that the unfortunate clergyman whose case I narrated was in part the victim of suggestive influences from the Press.

I am in full agreement with your correspondent "R. S. P." as to the grave responsibility incurred by the Press in publishing the details of tragedies from day to day. The immense power of suggestion on the human mind is as yet practically unknown or ignored even by the majority of those who esteem themselves wise and prudent. But it must be conceded that in the particular case which formed the subject of my article incidental good accrued in more than one respect by the publication of particulars. Reports calculated to give infinite pain to relatives and friends were spread through the neighbourhood by careless or vindictive tongues, but the wide circulation of the true facts with the added glamour to the ignorant of their being "in print" served to reduce these to silence. Then, again, the facts of the case as published were calculated to bring home to the common understanding the restricted part played by "consciousness" and the immense field of action that may be covered by the "subconscious" and lower areas of the human brain. When the elements of physiological psychology have become matters of common knowledge we shall doubtless modify our attitude towards transgressors of social law, achieving in time perhaps, that degree of mental orientation expressed in the French proverb, *Savoir tout c'est pardonner*. By this I do not mean of course that punishment is shortly to be eliminated from the criminal code. Punishment for the transgression committed wittingly or unwittingly is a preventive measure of nature which finds a somewhat more discriminating parallel in the courts of justice. But something substantial in human progress will have been achieved when we have learnt to judge our neighbours less harshly and cease to

> "Compound for sins we are inclined to
> By damning those we have no mind to."

However, we must, I suppose, be content to wait in patience for the day when primary physiologico-psychological concepts have been grasped by the mind of the general. To attempt to force new truths into minds unprepared to receive them is like blowing open a rosebud in the hope of converting it at once into a perfect bloom. We must wait and watch while we give what aid we can to the working of subtler forces.

Your correspondent "R. S. P." hints at the possibility of establishing a psychical branch of preventive medicine. Undoubtedly much could be done in the way of awaking public opinion as to the very real danger arising from the pandering of the Press to the cravings of the morbid-minded. In a case which I recently saw there was a pre-existing susceptibility to morbid ideas and the homicidical element was wholly to be ascribed to "Press" influences. To pursue the point further and ask whether all impulses, morbid or normal, are or are not invariably the result of impressions immediate or remote would involve a critical consideration of the determinist theory. It is the effect of the more immediate suggestions that concerns us, and surely it is time that some of our papers developed a keener sense of their responsibilities. At the same time, we must not lose sight of the fact that there are already forces at work meeting evil suggestion by counter suggestion.

Such are the perception and fear of consequences, the affections, &c., and that force which has proved through history to be the greatest force of all—religion. Here I cannot do better than quote from Dr. Ormerod's article on Hysteria in Allbutt's "System of Medicine," for that which applies to hysteria applies also to other manifestations of the morbid mind. "Few things are more opposed to hysteria than the trustful, patient, altruistic spirit inculcated by Christianity and few things more conducive to it than the terrorism, revivalism, mysticism, or self-concentration which sometimes pose as religion."

This is a factor in therapeutics which no medical man can afford to ignore, whatever his views may be on the transcendental claims of religion. It is to the first half of the quotation from Dr. Ormerod that I wish to direct attention. But while feeling it right also to quote the context I most earnestly disclaim any intention to pass judgment on those cases to which reference has been made in my article and by correspondents. It may be that these victims to the overwhelming stress of circumstance may prove to be unconscious martyrs in a cause which many have at heart—the checking of morbid sensationalism in the Press.

I am, Sirs, yours faithfully,

Hampstead, Sept. 14th, 1903. J. S. MACKINTOSH.

THE DISAPPEARANCE OF MISS HICKMAN, M.D.

To the Editors of THE LANCET.

SIRS,—Referring you to the papers herewith, I can only express my regret that the Royal Free Hospital authorities refuse to have a proper inquiry into the sudden disappearance of my dear daughter. I have appealed to the police authorities but they say that they are unable to hold an inquiry until the dead body of my daughter is produced. I had hoped that if the Royal Free Hospital authorities would have an inquiry, open to everyone who could give evidence and assistance and with power to cross-examine witnesses, some of the leading physicians of the day might attend and, after hearing the witnesses, give their opinion as to the state of mind of my daughter when she so mysteriously disappeared from the hospital about midday on August 15th last, since which date nothing whatever has been heard of her. If she left the hospital without having "lost her memory" and in a perfect state of mind she must have been kept since then in some convent or other building so constructed that the inmates of it cannot communicate with the outer world. If my daughter had been taken to any ordinary house she, being so strong, would have made a disturbance sufficient to alarm the people in neighbouring houses who would have informed the police and obtained the reward of £200 for such information.

I hope the public will warmly take up this unfortunate affair. If my daughter's disappearance remains unsolved no woman will think she can be in the London streets in broad daylight with safety.

I am, Sirs, yours faithfully,

Fenchurch-street, London, Sept. 10th, 1903. E. F. HICKMAN.

*** Among the papers to which Mr. Hickman refers are some copies of letters which appeared in an evening contemporary during the year 1887 concerning convents. Of these letters one states, in a quotation from a pamphlet, that "many deaths take place in these institutions, but the registrar is not allowed to register them—is not even informed of them! As the law stands at present they can do as they like." The date of the letter in which this quotation appeared is Sept. 29th, 1887. Mr. Hickman suggests that his daughter is being kept in a convent and we presume that he wishes to imply that in case of her death in such an institution no one would know anything about it. This is not the case. The allegations that deaths occurring in conventual establishments are not reported to the Registrar-General and are not registered are entirely untrue. Convents are subject to the law of the land as regards deaths of inmates in exactly the same way as any other institution. We trust that the mystery of Miss Hickman's disappearance may be soon cleared up, for the strain to which her relatives are at the present time subjected must be heartbreaking.—ED. L.

THE MEDICAL PROFESSION AND QUACK MEDICINES.

To the Editors of THE LANCET.

SIRS,—There is a growing custom among West-end physicians to advise the use of patent medicines. They usually go through the farce of writing out what purports to be a prescription on headed note-paper and signed, but on sending it to your druggist to have it dispensed you are supplied with "A. and K.'s Trynow," a commercial medicine and not a prescription from the British Pharmacopœia which experience dictated to the mind of the great physician as suitable to your malady and which you were entitled to expect for the fee of two guineas which you paid willingly. The druggist would charge nothing for suggesting "Trynow" as a good commercial nerve tonic. Should there be no remedy for such solitary two-guinea advice as "Eat an apple before breakfast"? I have the deepest respect for the honourable professions and sincerely hope that the medical profession is not falling upon degenerate days.

I am, Sirs, yours faithfully,

Sept. 10th, 1903. "SYRUP OF SQUILLS."

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Rising Epidemic of Plague.—The New Water-supply for Mussoorie.—The New Tube Wells of Burmah.

DURING the last week in August a marked increase has taken place in the mortality from plague in the Bombay Presidency, the deaths having risen from 2838 to 5568. The total mortality from plague in India has risen from 3613 to 6817. In Central India there has been an increase from 131 to 331, the mortality occurring chiefly in Indore city and Mhow cantonment. In Mysore also a rise has occurred from 331 to 535 and in Berar from 11 to 67. These figures are ominous because they show a widely spread recrudescence. At other places previously attacked the deaths are at present merely nominal—the Punjab and Calcutta, for example, only returning six deaths.

Those who know Mussoorie will be glad to hear of the completion of a great scheme for a better water-supply. The water is to be obtained from the Kempter Falls; the main feature is that it will be pumped up by electric power to three main reservoirs on the highest points of the ridge and thence distributed to the station. The electric plant is to have sufficient excess power to provide for the lighting of the whole place.

A method of raising water which has attracted but little attention generally has been used with great success in Burmah and might be made applicable to many parts of India. It consists of sinking tube wells (six or seven inch tubes) through alluvial soils until water is reached. The water rises in the tubes perhaps within ten or 20 feet of the surface. Then comes the special feature of the new process. A two-inch pipe is put down the larger tube right to the bottom and compressed air is forced in. The water which before was too low to be utilised now rises above the surface to a height varying according to the pressure supplied. The original supply may be as much as 200 feet below the surface but when the large tube is sunk it rises to a convenient distance. The compressed-air plant is not expensive and is readily applied. The system only requires to be known to be appreciated.

August 28th.

THE Nurses' Home recently built in connexion with the Birkenhead Borough Hospital will be opened by Sir Elliott Lees, Bart., M.P., on Saturday, Sept. 26th, when all persons interested in the institution are invited to be present. The building, which is L-shaped in plan and consists of ground and first floors, fronts Livingstone-street and has been erected on land adjacent to the hospital which was purchased a year or two ago from the corporation of Birkenhead. The home contains many modern improvements.

THE ELEVENTH INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Brussels, Sept. 12th.

IT is impossible to give a full description of the discussions which have taken place in the various sections. The motions adopted would of themselves fill several columns of space, to say nothing of the lengthy reports on which they are based and the prolonged discussions which some of these reports occasioned. All I shall attempt is to describe, with some amplitude, the work of the third and fourth sections, while mentioning briefly, and as a preliminary, the most interesting questions raised in the other sections.

THE FIRST SECTION.

As usual at these congresses the first or Bacteriological Section was the most attractive. Here a great number of reports were presented on the activity and doses of serums. What might be qualified as bacterial therapeutics were amply discussed, but, for my part, I fail to see what this has to do with hygiene. The use of serum as a prophylactic approaches nearer to hygiene and there were many papers and much was said on this subject also. But the section was more in harmony with the purport of the Congress when it discussed the question of the unification of processes for the bacteriological analysis of water. This was the fourth question set down, but the fifth question caused the greatest excitement, for it revived the dispute in regard to human and animal tuberculosis. The general opinion seemed to be that the bacilli were identical in man and cattle. In any case the matter is still in the experimental stage and therefore it would be most unwise in any way to relax the control of the meat-supply so far as tuberculosis is concerned. Numerous cases were mentioned of cattle being infected by human tuberculosis. Professor S. ARLOING of Lyons made a very remarkable speech on this subject and M. LIGNIÈRES of Buenos Ayres complained that too much time was spent in studying the mutilated bacilli of the laboratory instead of the bacilli as found in nature. Though undoubtedly of the same family the bacillus of tubercle differed in the bird, the bull, and man. The debate on this subject continued for more than one sitting and Professor G. SIMS WOODHEAD presided over the section on the afternoon of Sept. 5th. The discussion then came to a close and by a large majority the following motion was adopted by the section :—

Human tuberculosis is more generally transmitted from man to man; nevertheless, in the present state of our knowledge on the subject the Congress deems it necessary to take measures against the possibility of the infection of man by animals.

To arrive at this decision the second section joined with the first section, for the former dealt with food-supply and the veterinary sciences in their application to hygiene. On the following day the two sections sat apart once more and in the first section a motion was carried empowering Dr. Bordet, of the Bacteriological Institute of Brabant, to inquire from the chief of each official laboratory the precise process which he employs and his reasons for so doing when making a bacteriological analysis of water. Dr. EHRLICH, Dr. SPRONK, Professor CALMETTE, and Professor WOODHEAD proposed that an international commission should be appointed to fix the value and strength of serums and the commissioners elected for this purpose were Dr. Bordet, Dr. Kraus Dr. Loeffler, Dr. Paltauf, Dr. Kirchner, Dr. Cartwright Wood, Dr. Massel, and Dr. Gaviro. Professor CALMETTE, Dr. EHRLICH, and Dr. LOEFFLER proposed that a report should be presented to the next congress on the action of insects in the propagation of infectious diseases. Among the reporters appointed on this question were Dr. G. H. F. Nuttall from England and Dr. T. Smith from the United States of America

The last afternoon was devoted to the hearing of miscellaneous communications and some of them were of great interest. Dr. FOVEAU DE COURMELLES (Paris) read a paper on the Action of Light, its Power of Penetrating the Organism and its Use in the Treatment of Disease. Major E. MANGIANTI (Florence), a member of the Italian Medical Military Service, described the experiments which he had made with dust extracted from second-hand clothes. Inoculating 57 guinea-pigs and mice with this dust he found that 25 of these animals died from infection with clearly identified pathogenic bacteria. On the other hand, making similar experiments with the dust taken from 60 military uniforms, no injury was done to the animals, thus showing that the cleanliness and care taken of clothes in the army had a protective influence in regard to the germs of disease.

THE SECOND SECTION.

In this section a great deal was said about meat and still more about milk. Some attempt was made to minimise the danger of eating that portion of the meat from a diseased animal which did not seem to be affected, but such suggestions were not approved; yet it was agreed that the flesh of animals suffering from cattle plague and pleuro-pneumonia was not injurious. There was some difficulty in starting the discussion on milk. Professor BUDIN (Paris) treated this topic so much in the light of infant food that he was referred to the sixth section; others thought only of the chemical composition of milk; and Dr. RAQUET wanted to examine the question purely from a sanitary point of view. Dr. A. VAN ENGELEN said that it was first necessary to define what was meant by the term "pure milk," a proposal which was widely supported. Dr. BORDAS said that "milk is a liquid obtained by the complete milking of a healthy cow." He did not explain what the liquid that came from an unhealthy cow or from any other animal might be called. Dr. DELAYE proposed to define milk as "a liquid such as nature supplies to us from healthy animals." Dr. DEE explained the English law on the subject which, he thought, had contributed materially to reduce the prevalence of the adulteration and watering of milk. M. BERGÉ now asked what was meant by entire milk and thereupon a dispute arose as to whether watered milk was worse than skimmed milk. The water might convey disease but the skimming produced starvation. To decide these questions the section unanimously adopted a motion stating that only entire milk such as was supplied by healthy cows should be considered as milk. Then the section voted that skimmed milk should not be given to infants or aged persons. Thereupon it was suggested that skimmed milk should be sold in a different shop, but this proposal was rejected as not practical, especially in rural districts. The fourth conclusion of Dr. Bordas's report to the effect that antiseptics and other preservatives, of no matter what nature, should not be employed to preserve milk was unanimously adopted. Dr. van Engelen's report was considered to be somewhat impracticable, as his chemical definitions could hardly work in every-day trade. But his report led to many good things being said as to the supervision of dairies and to the suggestion that a poor milk should be made the pretext for examining the dairy whence it came. M. WILLEM and M. MIELE described a method for the antiseptic milking of cows which, they urged, would insure the preservation of the milk without pasteurisation. This may be true, but it is quite certain that only a highly trained nurse and not a milkmaid could carry out their complicated process.

The section then came to the question of preserving meat, vegetables, and the like. The following motions were adopted; they seem very like platitudes :—

The employment of food of bad quality or in course of being spoilt should be absolutely forbidden. The sterilisation of preserved foods should be complete. It is not possible to define by one single formula applicable to all cases how this can be done. The conditions vary according to the utensils used, the nature of the food, &c. The receptacles in which the food is kept should always be hermetically closed.

After this the second section merged with the first section to discuss the question of tuberculosis and it was not till the last day that it again sat by itself. M. RAPTCHEWSKI of St. Petersburg then showed a system by which tins of preserves could be inspected and their sterilisation demonstrated by a biological method. The general feeling, however, was that for practical purposes the main reliance must continue to be placed on the bulging out of the tins as a sign of decomposition. The section concluded that if after a period of incubation of one week at 38° C. a tin did not bulge out this was a sufficient proof that the contents were sterilised. How the contents would taste after so much over-cooking was not tested or discussed. Professor VAILLARD (Val-de-Grâce, Paris), one of the reporters, recalled the fact that the Congress of 1900 unanimously condemned the use of antiseptics, and though desirous of protecting industrial interests, their first duty was to the public—that is, to the

consumer. Two delegates, however, protested and demanded a definition of antiseptics. Were not salt, vinegar, sugar, honey, and other ingredients in daily use antiseptic? Then hops could not be employed for beer, therefore it was necessary to explain that it was only the use of dangerous antiseptics that should be forbidden. Professor VAILLARD replied that the objects mentioned were first and foremost articles of diet. After considerable discussion the section rejected several amendments tolerating the use of certain antiseptics in special cases and finally adopted a resolution worded as follows:—

There is no need to sanction the employment of antiseptics for preserved provisions.

The fourth report submitted dealt with the sterilisation of milk. One proposal was to the effect that 60° C. of heat for a quarter of an hour suffices and another that 85° C. for two or three minutes is enough and this was said not to spoil the milk. Nevertheless, Dr. Tjaden, director of the Bacteriological Institute at Bremen, concluded that the best way of preventing the spread of disease by milk was to inspect the dairies very carefully. The section had already accepted a proposal to that effect. Various speakers proposed different degrees of heat as sufficing for the purposes of sterilisation. Dr. MULLIE thought that heat at 75° C. for five minutes did not suffice to kill the germ of tuberculosis and several authors had shown that this temperature must be maintained for from 10 to 15 minutes. Nor did he think that cultures could test the matter; inoculation alone proved whether or no there was any danger. M. LACLAINCHE said that 85° C. was the minimum for the Koch bacillus. The section finally voted as follows:—

The processes of pasteurisation adopted in private houses or in industries may assure the destruction of the microbes of tuberculosis in milk but they do not sterilise the milk.

This section also carried the following motions:—

That the International Congress of Hygiene and Demography, deeming that a satisfactory food-supply is a powerful means of struggling against transmissible diseases, expresses the desire that an international movement should be officially supported having for its object the study and the popularisation of all means that may improve the food-supply of men and animals.

That the commission instituted at the Congress of Vienna, 1887, for the study of international measures that should be adopted against the adulteration of alimentary products—a commission of which Professor Brouardel is the president—should prepare for the next Congress a new report on the legislation actually in force and the surveillance exercised in different countries over the food-supply trades.

That the Second Section, deeply convinced that micro-organisms have a very important influence on general questions of hygiene, but more especially on the question of food supply, expresses the wish that bacteriology should be taught in the faculties of science on the same footing as physics, chemistry, mineralogy, botany, and zoology.

Such were some of the main points raised in these two sections. The Third and Fourth Sections deserve a fuller description as dealing more directly with practical sanitation. I will deal with them last, when the summary of the other sections is terminated.

THE FIFTH SECTION.

This may be considered the smallest section of the Congress and there were reports on only two questions—how to protect railway travellers and servants from transmissible diseases, and how to disinfect railway rolling stock. One of the most active members of this section is undoubtedly Dr. Louis de Csatary, chief of the sanitary services of the Hungarian railways. All who were at the Budapest Congress remember how useful he made himself in organising the excursion to Constantinople. But he has rendered a still greater service by never missing any of the congresses so that he should lose no opportunity of pressing forward the question of railway sanitation. As the majority of people only travel occasionally they are apt to neglect this subject, but they forget that the railway servants are in daily contact with travellers, and they and the carriages connect the travellers of the one day with those who have travelled before and those who will travel after them. Undoubtedly much of this danger would be obviated if the precautions that can be taken were understood by the whole staff of railway servants and one speaker desired to institute lectures on the subject, but Dr. BECKER replied that this would dislocate the railway service and that it would be better to distribute pamphlets. Then there was much discussion as to the provision of special railway carriages for persons who are ill and preventing such persons riding in ordinary carriages. Perhaps as much was said in regard to the health of the railway servants as with regard to the general public. For the public the carriages should be cleaned out often, but those railway servants who did this cleaning were especially exposed to contract diseases. They ought at least to be provided with overalls that could frequently be washed. Dr. JUSTI, of the Prussian railway medical service, urged that an international commission should see what could be done so that one country should not be placed at a disadvantage in regard to other countries that were less careful. In regard to the disinfection of railway carriages Dr. REDARD, chief of the medical service of the French State railways, said that these vehicles were at present so constructed as to render thorough disinfection impossible. Fumigations did not act on the microbe of tuberculosis. Carriages should be so furnished and upholstered that they could be washed all over. Dr. KOSSEL of the sanitary office of the German Empire pointed out that the system for the disinfection of trucks should be the same throughout Europe, especially in regard to cattle vans.

On Friday, Sept. 4th, this section, instead of holding a debate, went in a body to Namur and there visited the installations for the disinfecting and cleaning of railway carriages, cattle wagons, &c.

On Saturday this section exhausted its programme and was invited to join the sixth section on Monday where questions of travelling would also be discussed. After a long discussion it was generally felt that there was no known and practical method of disinfection for carriages which could be recommended to the various Governments. It might be urged that all nations should imitate the British legislation which rendered it illegal for a person suffering from infectious disease to travel in a public vehicle. Finally, the section adopted a series of recommendations to the effect that the upholstering of railway carriages should be such as to facilitate cleansing and disinfection. These carriages should be regularly cleaned out with damp cloths and pneumatic suction to draw dust out of cushions. More vigorous measures should be taken where it is known that contamination exists, as in times of epidemics, or when dealing with pilgrimages. Cattle vans should be disinfected each time they are used. For this purpose steam under pressure is especially recommended. The fifth clause of this resolution states:—

It would be an advantage to apply in all countries the same methods. It would therefore be useful to institute systematic experiments under the control of an International Commission so as to determine what method or methods of disinfection of cattle and goods trains best fulfilled the following conditions: cheapness, rapidity, efficacy without deterioration of material.

In the afternoon of the last day in this section some discussion took place in regard to sanitation on board ship and Dr. CHARLES BELLI gave some interesting information concerning bacteriological life below deck which served to demonstrate the importance of the subject under discussion. Dr. AUFFRET, Naval Inspector-General, declared that sanitation in the French navy had greatly improved. With ironclads hygienic measures were more necessary than with the old wooden ships and the *Gaulois*, the *Duguay-Trouin*, and the *Suffren* were model habitations where hygiene reigned as sovereign mistress and this without interfering with the maritime services required.

(To be continued.)

OUTBREAKS OF PLAGUE NEAR THE TURCO-PERSIAN FRONTIER AND IN THE LEBANON.

(FROM THE BRITISH DELEGATE TO THE OTTOMAN BOARD OF HEALTH.)

A LIMITED outbreak of plague recently occurred in two villages on the Turkish side of the Turco-Persian frontier. A medical commission was despatched from Basra to inquire into the origin of the outbreak and to take measures for its control and it is from the report of one of the members of this commission that the following details are taken.

The earliest information concerning the outbreak was contained in a telegram from the sanitary office of Amara, dated April 22nd, which announced that an unusual mortality was prevailing in the village of Zobeir. This village, or small town, is about six hours' distance from Amara and two hours from the Persian frontier. Amara is a place of some importance on the river Tigris, some 50

miles north of its junction with the Euphrates. The commission left Basra on April 29th. On arriving at Zobeir it was found that nearly the whole population had fled elsewhere and only about 40 persons—mostly women and children—remained. Before the outbreak occurred the village had consisted of about 60 houses, occupied by about 200 persons. Only two sick persons, both convalescent, could be found. Each had a bubo in the right groin which was in a state of suppuration.

On inquiry it was ascertained that the illness had been present in Zobeir for some 22 days, that it had caused 17 deaths, and that, in addition to the two convalescents seen, two other persons had been attacked and had recovered. The symptoms described were those of typical bubonic plague. A further inquiry as to the origin of the disease brought out the fact that a serious epidemic had existed since February last at Huveiza, a place on the Persian side of the frontier, about three hours' distance from Zobeir and having constant communications with the latter. The mortality in Huveiza is said to have been extremely high; the report, indeed, speaks of "thousands of victims." At Zobeir the first case was that of a boatman plying on the river Chahala, the branch of the Tigris which enters the plain between Amara and Huveiza. This man had been to Huveiza and on his return to Zobeir he fell ill and died after 48 hours' illness. Two days later his son was attacked and also died. Other cases followed and by May 2nd the numbers of cases and deaths had reached the totals already mentioned of 21 and 17 respectively. On May 11th six other cases were seen by the commission and the final totals were 27 cases and 23 deaths.

Two cases of plague were also discovered at Massaida in the neighbourhood of Zobeir and on inquiry it was found that four deaths from a similar disease had occurred there. The patients in both these cases died but several others followed and by May 24th, when the outbreak came to an end, the total number of cases had reached 20 of which 17 patients died and three recovered. Several of the cases here are said to have been "fulminant" in character with intense fever, headache, vomiting, purpura, disturbed speech, irregular pulse, stupor, and death—without the development of buboes—in 12 or 24 hours. Others followed a slower course and were characterised by the development of buboes in the usual positions.

The measures taken to control these outbreaks are said to have been in the end of a drastic character. During the first week little more was done than to establish a "cordon" around Zobeir. The uselessness of this cordon is shown by the fact, stated above, that four-fifths of the inhabitants had already escaped elsewhere. When the commission arrived, however, more serious measures were put in hand. These consisted mainly in burning down the infected houses and in removing the inhabitants to tents or temporarily built houses some distance away, after first thoroughly disinfecting their persons and effects and giving them new clothes. Even these radical measures did not wholly suffice to arrest the epidemic at once, for though they were put in hand on May 2nd six fresh cases, all occurring in one day, were observed on the 11th. There were no further cases, however, and a month later, on June 11th, the cordon was removed against Zobeir. Similar measures were taken at Massaida, and on June 24th the cordon against this place was also suppressed.

Another outbreak of plague, still more limited in that it was apparently confined to three cases, has also occurred recently in the Lebanon. On July 4th the Governor-General of the Lebanon telegraphed that a suspicious disease existed in the village of Djibeil, 15 miles to the north-east of Beirut. A later telegram, dated July 5th, described the village as containing 250 houses and some 1500 inhabitants, and stated that a case of plague, "clinically characteristic," had been observed in a native grain-dealer. The man had been ill for seven days. The village medical men had seen a similar case on June 28th, the patient being a young girl who died after three days' illness characterised by fever and buboes. The second case was that of a woman who lived near the first patient; she also died. In the third case, that of the grain-dealer, recovery ensued; plague bacilli were found in the bubo. It is added that several dead rats were observed in some of the village shops. None of the patients had left the village for many months before their illness, but as the inhabitants of Djibeil possess sailing boats and have a good deal of traffic with the Egyptian coast it is thought the infection may have been introduced by the landing of contraband goods. Up to the present no written report on this outbreak has been received by the sanitary authorities in Constantinople and only the above scanty details, which are taken from the brief telegraphic reports, are available.

Constantinople, Sept. 5th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Glasgow University Extension.

AT a meeting of Glasgow University Court held on Sept. 10th, the Lord Provost in the chair, the members considered the question of the sites and designs of the new buildings and after a very full discussion saw no reason to stop the operations. Dr. D. C. McVail dissented.

Imported Enteric Fever at Glasgow.

Considerable interest has been taken in the fact that Dr. J. Knight, acting medical officer of health, has reported to the health committee of the corporation of Glasgow the discovery within the city of several cases of enteric fever of imported origin. He states that up to the present 18 such cases have been ascertained and they are not confined to any one particular district in the town. The history of all these cases is similar in the following respects. The patients had been on holiday at the same coast town during the probable time of infection. Further, they had all without exception consumed shell-fish (cockles and mussels) in the raw and cooked conditions. This raised the presumption, in the absence of any other source of infection, that the shell-fish had been the cause of the disease owing to their having been contaminated with sewage. This presumption is strengthened by the occurrence of similar cases in two burghs adjoining Glasgow. The above list does not contain eight other cases belonging to one family, the origin of the disease amongst which deserves special notice and cannot fail to be regarded as confirmatory of the presumed cause of infection. This family had not visited the coast town in question but had shell-fish from that place brought by a neighbour and had eaten the same. From a study of the dates of sickening in this latter family it is evident that the mother sickened of enteric fever and that the remaining members had become secondarily infected through her. Added to the list given above this makes a total of 26 cases directly and indirectly associated with the same coast town. The medical officers of health of the county and burgh concerned sent shell-fish some time ago to the medical officer of health for examination by Dr. R. M. Buchanan, the city bacteriologist, but the investigation is not yet complete. No other cases have been discovered and it is probable that the outbreak is at an end. Meantime, the local authorities concerned have issued precautions containing warning against the consumption of shell-fish from that particular locality. In view of the above facts the Local Government Board has asked whether the local authority would allow Dr. Knight to accept an appointment by the said Board as commissioner to investigate outbreaks of enteric fever alleged to be due to the eating of infected shell-fish. The health committee has agreed to recommend that this request should be acceded to, at the same time intimating to the Local Government Board that a report on the recent outbreak of enteric fever in the city from this alleged cause is being prepared by Dr. Knight for the information of the corporation, and that a copy of that report would on completion be forwarded to the Board for its information.

Sept. 15th.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Irish Poor-law Medical Officers.

THE Local Government Board has written to the Ballymena board of guardians pointing out that it devolves upon that board to provide temporary substitutes for dispensary medical officers during the absence of these officers on vacation and that the guardians should therefore allow such reasonable remuneration as may be necessary to secure the services of duly qualified practitioners. In reference to the Ballymena and Glenwherry dispensary districts the Local Government Board recommends the guardians to make the requisite

temporary appointments. The guardians decided to have a conference on the question and accordingly a committee appointed by them met on Sept. 12th to confer with the dispensary medical officers in reference to the holiday question and the payment of temporary substitutes for these officers while on vacation. It was then decided to pay each dispensary medical officer in lieu of holidays ten guineas additional, this to be a full discharge of all liability by the guardians in the matter of holidays for the dispensary medical officers; this was unanimously agreed to by the medical officers. The decision is to be regretted on two grounds: (1) because it is to be feared that on a vacancy occurring in any of the dispensaries held by those who have obtained this increase, the guardians will simply deduct this increase, fixing the salary at the present sum minus the ten guineas; and (2) it does not settle the question of the payment of locum-tenents in case of sick medical officers. All the medical officers must stick together in every part of Ireland or their attempts to obtain justice will be a failure.

Granard Union Inquiry.

What is known as the Granard nursing scandal is still a subject of general, and especially of medical, interest in Ireland. It has just entered on a new phase. At a meeting of the guardians held on Sept. 14th a long letter was read from the Local Government Board referring to the recent report of Dr. J. Smyth, its inspector. It first deals with the conduct of the master of the union as regards the patient Masterson who died and to the admission of the locum-tenent who undertook the duties of the medical officer, Dr. J. M. S. Kenny. After alluding to former adverse reports concerning the master the Board states that he "cannot be permitted to retain the position of master and they have accordingly given directions for the preparation of an order under seal dismissing him from the office." As regards the locum-tenent, the Board considers that the evidence proves conclusively "that he is not a proper person to be entrusted with the care of the sick poor and they will not sanction his employment in future either as permanent or temporary medical officer." With respect to another person concerned the Board is of opinion that he deserves censure for the part that he took in actively helping out the scheme planned for the avowed purpose of depriving Dr. Kenny of his appointment in the Granard workhouse. A record has been made against him in the books of the department and the Board states that it trusts that it will be a warning to him not to be again led into any similar discreditable transaction and to confine his attention to the discharge of his duties in his own district. The letter goes on to say that as the other persons who took part in this regrettable affair are not amenable to the control of the Local Government Board "no useful object would be gained by passing their conduct under review." The letter concludes with a pious exhortation to the rebellious guardians: "Now that the medical officer has disclaimed any intention of wilfully hurting the feelings of the sisters and has expressed his regret that any words or actions of his have had this effect, the guardians appear to have an opportunity of bringing about a reconciliation which would have the effect of facilitating the return of the sisters to their place in the infirmary."

Health of Belfast in 1902.

The medical officer of health (Dr. H. Whitaker) has issued his annual report on the health of the city of Belfast for 1902. There were 7577 deaths during the year and of these 1027 were from zymotic disease, 1132 were from phthisis, and 1779 were from other diseases of the respiratory organs. An epidemic of measles was responsible for 349 deaths, whooping cough for 208, diarrhœa for 204, and typhoid fever for 169. The death-rate was 20·8 per 1000 from all causes (2·8 from zymotic and 8·0 from chest affections). The birth-rate was 30·5, the population being estimated as 358,680. The deaths from chest and zymotic diseases were 3938—that is, more than one-half of all the deaths registered in the city. It is deplorable to read that as to the causes of the deaths of the other 3639 the medical officer of health has no information. "In most of the other large centres of population the medical officer of health is supplied with this information and with us it could be obtained, as also the names of the streets and numbers of the houses in which the deaths occurred, by arrangement with the registrars of the respective districts. I know nothing of where any deaths take place, except from the Registrar-General's returns, which merely state that so many deaths occur in a certain district. As these districts comprise hundreds of acres and thousands of persons, it is impossible for me even approximately to state where they occurred." So long as this most extraordinary state of affairs exists, what is the use of a health report at all? What is the use of a health committee if it cannot support its official and put an end to such a state of matters which would not be tolerated a week in any English city? Again, Dr. Whitaker writes: "I have no means of estimating the numbers of the different forms of chest affections." This shows a most deplorable condition of matters. Pulmonary tuberculosis caused 1132 deaths during the year (and as all the other diseases of the respiratory organs are quoted together it is not improbable that many of them were tuberculous). This means a mortality of 3·1 per 1000 during the year, and it is sad to read that the total number of beds in Ireland for this disease only amount to 85, of which more than one-half are in Belfast. The report is melancholy reading for two reasons—first, because it shows such a terrible death-rate from the preventable disease pulmonary tuberculosis, and secondly, because it indicates that the suggestions made by the medical officer of health, in this as in former reports, to his committee are indeed the voice of one crying in the wilderness.

Proposed Shelters for Consumptives in a Belfast Park.

The proposal made by the public health committee of the city corporation of Belfast to erect shelters for consumptives in Ormeau Park aroused so much indignation amongst the residents of the city that it was defeated at a meeting of the council on Sept. 1st.

Infectious Diseases in Belfast.

An influential deputation appointed by the board of management of the Royal Victoria Hospital waited on the city council of Belfast at its monthly meeting on Sept. 1st. The chairman, Mr. W. Crawford, J.P., having introduced the deputation, Professor J. W. Byers pointed out that when the new Royal Victoria Hospital was opened the authorities of that institution would no longer be able to take in infectious cases, as when six years ago they began to mature their plans they were informed that the city corporation was about to erect an infectious diseases hospital and so they did not make provision for that class of patients. Now when they were about to leave the old hospital (where for 100 years infectious diseases were treated) they found that the city fever hospital would not be available for at least three more years and the question arose as to what provision the city council would make during this transition period for the class of patients who up to the present were admitted into the old Royal Hospital. The suggestion the board of management made was for the city corporation to take over the old Royal Hospital and to utilise it for infectious cases until the new city fever hospital was quite ready. The deputation was favourably received and it was decided to refer the matter to the public health committee for further consideration.

Lurgan Workhouse.

The guardians having asked the medical officer of Lurgan workhouse for a report in reference to the increased expenditure, Dr. J. S. Darling has replied, pointing out that to give an explanation involved much difficulty, as the cost of the inmates in the body of the house was not distinguished from that of the patients in the infirmary and fever hospital, so that there would always be a doubt as to how much of the excess in any item was due to one part of the establishment and how much to the other. A diminution in the average number of days during which the patients in the infirmary were under treatment had taken place. For instance, in 1897 1050 patients were treated, of whom 28 were fever cases; in 1903 1632 were treated, 239 of them in the fever hospital. So that there was an increase of 33 per cent. in the collective number of days for the entire establishment and one of 63 per cent. in the numbers treated in the infirmary and fever hospital. With 582 moving through the wards in a year, a small increase of cost per day, Dr. Darling submitted, was amply compensated for by the great fall in the average duration of treatment. The contributions of patients have risen from a very small sum in 1897 to £173 in 1903. If he was shown by someone how to treat the sick on less than 3*s.* 3*d.* per week (this sum including fire, light, food, washing, and stimulants) Dr. Darling said

that he would be glad to learn and he believed that many institutions would be pleased to know how that institution did justice to fever patients at less than 5*s.* per week. The report is to be further considered.

The New Royal Victoria Hospital.

The patients from the old Royal Hospital in Frederick-street, Belfast, will be transferred to the new Royal Victoria Hospital in Grosvenor-street on Thursday, Sept. 17th. At first three surgical units—that is, six wards with four theatres and 96 beds; two medical units—that is, four wards with clinical rooms and 64 beds; the gynæcological and eye wards (each with 16 beds), and the isolation blocks will be opened.

Formalin in Milk.

In Belfast, on Sept. 14th, a farmer was fined £5 for employing formalin as a preservative of milk.

Sept. 15th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Plague at Marseilles.

THE London daily press has given much fuller details of the cases of plague which have occurred at Marseilles than we are able to obtain in this country, even with the advantage of being able to apply to the best and most trustworthy sources of information. At the moment at which I write it appears evident that the epidemic is stayed, no fresh cases having been notified for some days. The patients, moreover, who are in the lazaretto on the Ile Ste. Marguerite are well on the way to recovery. Dr. Chantemesse, joint inspector of the sanitary department, is in Marseilles and has organised preventive measures of a practical sort. The plague, as is well known, broke out in a paper factory which makes use of rags coming from abroad. For some time past a great mortality among the rats in this factory had been noticed—a fact which should have been a warning of what might be going to happen. The early cases noticed were slight, but in the later series it would seem that infection had been caused by a virus of higher strength. Injections of preventive serum were promptly given and the factory has been disinfected in the most thorough manner by being burned down, accidentally it is true, but possibly none the less fortunately. It is therefore probable that the plague has been extinguished at its place of origin.

Workmen's Compensation.

The new law dealing with compensation for accidents to workmen, which has given rise to so many difficulties in its application, is now menaced with a new set. There is a disposition to include under the word "accident" any illness or disease which a workman may contract. Already the courts have had some singular cases before them. In one of these a workman in a glass factory contracted syphilis through using a blow-pipe which it was alleged had been infected by one of his fellow workmen. He thereupon demanded damages from his employers. The court reserved judgment; but should it decide in favour of the workman in question his fellows will have no reason to congratulate themselves, for their employers will certainly be within their rights if they discharge without mercy any man showing signs of syphilis. Tuberculosis is another question of the same sort. A railway porter brought on a pulmonary hæmorrhage by lifting a trunk which was too heavy for him. He then presented no sign of pulmonary tuberculosis, but this developed within a short time and he accordingly, with the advice of his medical man, sued the company for damages. It would have been interesting to know what view the courts would have taken, but the company, dreading a case against them which would be used in future as a precedent, preferred to compromise by paying a sum of money. The case is without doubt a difficult one, for it is impossible to decide how far the workman before receiving his injury was affected by predisposition. Even if there is no history of family predisposition there remain conditions which have nothing to do with his employment or the place in which he works, such as his mode of life at home, his food, his addiction to alcohol, or the chance of infection from some part of the town quite apart from the factory. Again, as in the case of syphilis, the recognition of tuberculosis as an "accident" will not benefit the workers, for employers, who always have more applications for posts than they have room for, will ruthlessly eliminate all the hands who appear likely to contract tuberculosis and so a number of people will be driven into starvation. Lead-workers are also demanding that lead poisoning should be considered as an "accident" without taking into consideration the effects of alcoholism or their own neglect of necessary hygienic precautions. In a word, there is no disease incidental to trade which may not be classed as an "accident," though possibly this may have the effect of making employers more rigorous in seeing that hygienic precautions are carried out. But even then there would be a class of workman who would rather live in idleness, with an illness contracted voluntarily and a small pension, than work and be well.

Sept. 15th.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Newsboy Regulations.

REFERENCE has been made on more than one occasion in the New York correspondence of THE LANCET to the condition of child labour in the United States and to the various laws proposed in different parts of the country to remedy the evils of the present system. At the last session of the New York Legislature three child-labour laws were passed, the first of which has just come into effect. It concerns itself with the employment of children in street trades, especially with the sale of newspapers, and enacts that no male child under ten and no girl under 16 years of age shall sell or expose or offer for sale newspapers in any street or public place. Further than this, it provides that boys between ten and 14 years of age may do so only until 10 o'clock at night, and while doing so must wear badges which are issued by the district superintendents of schools. The application for such badges must be made by the parent, guardian, or custodian of the boy who must also be present. The newsboy law and those relating to children in factories and mercantile establishments have been the result of the work of the New York Child Labour Committee. According to its secretary the purpose of this committee is twofold. One is to bring all children into the schools where they can have the advantages of an elementary education and the other is to stamp out child labour wherever possible, the claim being that the combination of illiteracy and physical decadence is detrimental to the welfare of the State.

Cholera in the Philippines.

Although the cholera situation in Manila is said to be steadily improving—according to the latest report there had been in the preceding week eight cases and seven deaths in that city—the disease is very prevalent in many other parts of the islands. So far as Manila is concerned the recent outbreak, with one exception, has been entirely confined to natives and Chinese. It is stated that most of the persons affected have either directly or indirectly come into contact with the Pasig river. Consequently much concern is felt with regard to the cholera which is still present on the watershed which supplies Manila with its drinking water. According to public health reports there has been an alarming increase in the number of cases in that locality. During the week ended July 4th there were 57 cases and 35 deaths. It is generally felt that the delay in the onset of the rainy season has been of great assistance in preventing the stream which drains the watershed from becoming infected. It is thought that the drinking water supplied by the city mains was not infected during the epidemic in Manila last year. Therefore, should this supply now become infected the widespread dissemination of the disease can well be imagined. In Cebu cholera is rampant, so much so that strict quarantine measures have been enforced.

Spread of Yellow Fever in Mexico.

It is announced that yellow fever is spreading rapidly in Mexico and especially along the gulf division of the Mexican Central Railroad. The fever is epidemic in many towns situated in proximity to the railroad and the mortality is stated to be large. The Mexican authorities have made vigorous efforts to quell or to control the epidemic but with no great success. A double quarantine has been established between Monterey and Linares; at the latter place the disease is very prevalent. Texas is alarmed at the situation,

fearing that the disease may be conveyed across the border and is said to be meditating the establishment of an old-fashioned quarantine against Mexico. The sanitary conditions in some of the Mexican towns are bad, yellow fever patients are not always rigorously isolated, all cases of the malady are not promptly reported, nor is the destruction of mosquitoes carried out in a thorough manner. Nevertheless, on the whole, the Mexican people may be relied upon to coöperate loyally with the medical men of the United States Public Health and Marine Hospital Service, so that the fear of yellow fever invading the United States by way of Mexico is far less than in former days.

Vital and Toxic Theories of Cancer and their Bearing on the Parasitic Theory.

In the Gratwick Research Laboratory of the University of Buffalo good scientific investigatory work has been done as regards the origin of cancer. It will be remembered that some two and a half years ago Dr. Gaylord, of the University of Buffalo, propounded views as to the parasitic origin of cancer which excited much discussion. Recently Mr. G. H. A. Clowes of the Gratwick Research Laboratory has written on the vital and toxic theories of cancer and their bearing on the parasitic theory. He summarises his views as follows:—

An attempt has been made in my note to show that the parasitic theory of the origin of cancer is not in any sense incompatible with the various toxic or chemical theories; in fact, that the production of the toxins generally recognised as playing an important part in the disease may most readily be attributed to the introduction of some form of intracellular parasite which on infecting the cell proliferates, produces toxins, and then indirectly stimulates the host cell to proliferation. This theory suggests an explanation for (1) the production in ever-increasing quantities of some body capable of stimulating the cancer cell to enormous proliferation; (2) the selective action displayed by this body for one particular cell, and the direct descendants of that cell, to the exclusion of others of the same type; (3) the apparent impossibility of infecting healthy individuals with the blood of cancer patients but only by means of intact cells.

Sept. 7th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Lunacy Matters.

FROM the report of the Inspector-General of the Insane of New South Wales it appears that on Dec. 31st, 1902, the number of insane persons under official cognisance was 4687, as against 4488 at the end of the previous year. The increase during the year, therefore, was 199. The average annual increase for the past 20 years was 119; the increase now shown was, therefore, much above the average. The proportion of insane to the general population was one insane patient to 299 persons in the State. The patients on the register were distributed as follows: 4467 were in hospitals for the insane, 53 were in licensed houses, 153 were absent on leave under the provisions of the Lunacy Act, and 14 were in hospitals for the insane in South Australia. The number in hospitals had increased by 203, in licensed houses by three, and in South Australia by one. The deaths numbered 318, 199 of these being of men and 119 of women. Calculated on the average number resident this gave a percentage of 7·18. By far the larger number of deaths were due to cerebral and nervous diseases. The proportion was 119 out of a total of 318, or 37·4 per cent. Of these no less than 36 were cases of general paralysis, a disease which, invariably fatal, was increasing in modern times out of proportion to the increase of population. Pulmonary consumption was given as the cause of 56 deaths and old age and debility of 24. Patients whose health was in a low condition were specially susceptible to phthisis and overcrowding of the wards, with the resulting want of efficient ventilation, was a prolific cause of its spread. The year 1902 had been characterised by the largest number of admissions on record and by the largest increase in the population of the hospitals in any one year, and although some part of these might be due to the distress caused by the drought, an examination of the figures showed that each year an increased number of patients must be expected in the hospitals. It was apparent that the present institutions cannot continue to accommodate these without enlargement, and the need for this had now become pressing. The most satisfactory method of providing the accommodation was by proceeding with the erection of the hospital at Orange, as had been recommended in previous reports. A suitable site had been reserved, cleared, and fenced, ready to begin building operations. The plans had been prepared and required only detail drawings to be submitted to tenderers. It would, however, be requisite to enlarge the existing institutions. Of these, Gladesville urgently required the addition of admission wards for acute cases of both sexes, and at Rydalmere, at moderate cost, accommodation for a considerable number of men could be provided. These works should be at once carried out, while the larger undertaking at Orange was also being progressed with. Public interest in the subject of lunacy reform is growing in Victoria. Several public meetings have been held and the newspapers are publishing papers and correspondence on the subject almost daily. On July 31st a deputation of about 100 people, including prominent business men, medical men, clergymen, politicians, municipal representatives, and representatives of various organisations, waited on the Chief Secretary to urge the imperative need of radical reform in lunacy administration. The statements made were repetition of what had been pointed out before and what has been previously referred to in these columns. The reply of the Chief Secretary was not satisfactory beyond saying that an amending Bill was being drafted. He declined to indicate the lines of the Bill. A Bill previously drafted gave very little satisfaction. When asked whether he would not do something to correct evils requiring immediate attention and not demanding legislation the Chief Secretary said, "I don't know that I can." As a matter of fact, many improvements have been suggested that would not be expensive or require new legislation, but nothing has been done.

Hospital Affairs.

The annual report of the Melbourne Hospital showed that the year closed with a deficit of £4073 2*s*. 5*d*. in the maintenance account. The total number of patients treated was 22,925, of whom 4328 were received into the wards. The number of patients suffering from infectious diseases was 354, and of these 231 were children under the age of 15 years. Regarding the financial position of the institution the report stated that a proposal to close some of the wards had been deferred in the hope that public response to a special appeal for funds would render unnecessary what the committee thought an act of inhumanity. With the object of increasing the area of support the committee suggested that a vigorous effort should be made to secure the imposition of a tax on amusements for the benefit of public charities. The maintenance of the hospital had cost £7147 19*s*. 2½*d*., which was £171 less than last year; the surgery and dispensary (£5196 13*s*. 4½*d*.) were £269 less; salaries and wages had totalled £7817 16*s*. 11*d*., which was £146 below last year, while on the total ordinary expenditure of the year, amounting to £26,194 12*s*. 1*d*., a saving of £1101 had been effected on the figures for the preceding 12 months. The ordinary income of £21,570 13*s*. 4*d*. had gone back slightly, which was due mainly to the reduction in the Government grant, but general subscriptions had been very well maintained.—The thirty-third annual report of the Alfred Hospital, Melbourne, showed that the number of out-patients treated during the year was 4265, the in-patients numbering 2010 and the casualties 2380, making a total of 8655. The average cost per occupied bed showed a marked reduction on the previous year, the figures being £58 19*s*. as against £61 10*s*. The cost of each patient was also less, though the average stay was one day longer. The further reduction of the Government grant by £720, in face of the greatly increased demands on the hospital accommodation, had been the main cause of the institution failing to meet the expenditure out of revenue.—The condition of the leading medical charities in Melbourne is now one of chronic debt. A great deal of the difficulty in obtaining adequate funds for the maintenance of the charitable institutions is probably due to the multiplicity of organisations, many of which overlap in their work, and the consequent unnecessary expenditure, in the way of administration, of money that otherwise would go towards maintenance. Altogether, there are in the metropolitan area no less than 151 institutions and societies for philanthropic purposes. Another cause of trouble is the extent to which all these organisations look to the Government for financial support. The amount received from the subscriptions of the charitable is relatively small and a glance at the lists of subscribers shows that practically the same people, limited in number, subscribe to all the charities. The cost of collecting these subscriptions is also far too heavy. Out of every £100 collected the Eye and Ear Hospital spends £32 1*s*. 2*d*. for

collecting the Women's Hospital £17 18*s*., the Alfred Hospital £17 6*s*. 8*d*., and the Melbourne Hospital £13 5*s*., while one country institution actually pays £43 6*s*. 4*d*. for every £100 of its revenue. With the object of improving this state of affairs a Hospitals Volunteer Help League has recently been founded in Melbourne. The chief features of the league, as set out in its constitution, are (1) voluntary service: (2) reaching by a well-organised system of collections the people who never subscribe because they are never asked; (3) the regular collection of even the smallest subscription; and (4) the liquidation of the office expenses of the central council by voluntary subscriptions. Compared with the United States of America and Great Britain the private contributions to hospitals, even allowing for the great difference in the populations, are very small in Australia.

The Chair of Physiology at Melbourne.

Dr. C. J. Martin, F.R.S., has resigned the professorship of physiology in the University of Melbourne owing to his appointment as director of the Lister Institute of Preventive Medicine. Dr. Martin will be difficult to replace in the Melbourne Medical School. Not only was he a good physiologist and original investigator but he was also a remarkably sympathetic and stimulating teacher, exerting a personal influence of the highest value. He completely reorganised the teaching of physiology in Melbourne, equipping laboratories and stimulating original research, not only in his own students, but also in graduates, directing and helping them in their investigations. The conditions for a new appointment to the chair of physiology and histology have been agreed on by the council of the University. It was decided that the salary for the new professor should be £900 per annum, with a house, subject to a reduction of £200 per annum until such time as the pension, at present chargeable against the chair, should fall in. Further provision was made to the effect that on the arrival of the new professor in Melbourne the council should purchase an endowment assurance on his life, the policy to be payable at the age of 55 years, or at his death, should that event occur previously, and that the amount of the annual premium for such assurance should be £80. The policy is to stand in the name of the University and is to be handed over to the professor only in the event of his resignation or to his heirs in the case of his death. Should the new professor of physiology remain in the service of the University after attaining the age of 55 years he will be entitled on the termination of his office to any interests or profits which may have accrued to the policy on his life.

The late Dr. F. N. Manning.

A fund has been established to provide a memorial of the late Dr. Manning. It is proposed that the memorial should take the form of a bust.

August 4th.

Obituary.

THOMAS RICHARD JESSOP, F.R.C.S. ENG.

MR. T. R. JESSOP was born at Brighouse, Yorkshire, on Nov. 11th, 1837. He was educated at the Giggleswick Grammar School under Dr. Butterton and entered the Leeds School of Medicine in 1856. He was apprenticed as a pupil to Mr. Farrar of Brighouse and later, in Leeds, lived as a pupil with Mr. Thomas Nunneley. In 1860 he was appointed house surgeon to the Leeds General Infirmary. In this capacity he had control of all the hospital cases, medical and surgical, and was called upon to perform many of the post-mortem examinations. In 1865 he began practice and almost at once became busily occupied. In 1870 he was appointed surgeon to the Leeds Infirmary, having previously served for two years as surgeon to the Leeds Public Dispensary. At the School of Medicine he passed through the junior posts and was eventually appointed lecturer on surgery and on practical surgery. This post he held when the school was amalgamated with the Yorkshire College and he thereby became the first Professor of Surgery in the Yorkshire College of the Victoria University. This office, however, he was compelled to resign after a few years owing to the heavy pressure of hospital and private work. In 1890, after serving 20 years, he retired from the active staff of the infirmary and was appointed consulting surgeon. In 1892 he was elected a member of the council of the Royal College of Surgeons of England, being re-elected in 1900. In 1901 he was chosen as Senior Vice-President of the College and was nominated as Bradshaw Lecturer. For many years he represented the West Riding branch of the British Medical Association upon the council of that body.

Throughout the whole course of his professional career Mr. Jessop accepted consulting work in medical, surgical, and gynæcological cases. After he left the infirmary in 1865 it was at first doubtful whether he would limit himself strictly to medical work. That he should do so was the wish of many of his professional friends. Indeed, he was strongly pressed to begin practice as a physician and support was promised him by a large number of practitioners in and around Leeds if he should decide to do so. Within the first few days of his start in practice he was sought as a consultant in both medical and surgical cases and up to the end of his career he continued to see in consultation and at his chambers a large number of medical cases. He described himself as the last of the "general consultants." In spite of the fact that he had during the whole of his 20 years of office as surgeon to the infirmary a wide consulting practice he remained in general practice also. His own private visits were paid in the early morning or late in the evening; the day was almost always fully occupied with hospital or consulting work. It was only upon his appointment as consulting surgeon to the infirmary in 1890 that he relinquished private practice and, not without misgiving, decided to accept nothing but consulting work. His reputation was established early. Those of his friends who still remain tell how he was singled out, while yet a resident at the hospital, as a man destined for great honours. His capacity for work was unbounded. Few men have ever possessed the physical energy that was his. After a list of from 10 to 20 operations at the infirmary he would start a round of visits that would have contented many as a day's full work. As an operator his chief distinguishing feature was his caution. He seemed to have an intuition, doubtless born of long experience and careful observation, of the capacity of his patient to stand any operative measure. He had an accurate estimate of what was best suited to each particular individual. His judgment was extraordinarily sound. In the examination of his patient he was minute and exhaustive. There was never any hurry: all things were inquired into systematically and deliberately. However obvious a case might be, tempting a speedy diagnosis, he was never enticed into haste and when he had made up his mind he had not only achieved a correct diagnosis, but he had also excluded or negatived the incorrect. If, therefore, a discussion arose in subsequent consultation as to the presence or absence of any sign it was never necessary to return for a re-examination of the patient. The sign, whatever it might be, had been duly noted and its value weighed. Towards a colleague or a practitioner in consultation he was full of tact and kindness. Everyone who called him in to see a case felt that he had received help and support from the shrewd counsel and the weighty opinion of one who measured every word. It was realised when he had examined and discussed a case that symptoms and signs were made to have their proper relative values, and that an accurate summing up of the case had been given. To patients he was a model of courtesy and kindliness.

As an operator Mr. Jessop was in his prime one of the most skilful surgeons that Leeds, a birthplace of surgeons, has ever produced. He was scrupulously exact in all his methods—every movement was purposeful and achieved a result. His imperturbability was remarkable. Nothing in the nature of a crisis found him unprepared, no disaster got the better of him. The operation continued with measured orderliness, whatever chanced. As a teacher he was precise and emphatic. His clinical descriptions were so vivid and so accurate that one of his most distinguished pupils has said, "He made you *feel* the disease he described." In his earlier years much of his work was notable. It was he who first, in extra-uterine gestation, saved by operation both mother and child in a case in which the abdominal pregnancy had advanced to the eighth month. He was the first in England to operate successfully for sarcoma of the kidney. His work on the surgery of the prostate followed close upon McGill's. The record of his operative treatment of stone in the kidney (including the successful removal of a stone weighing over 11 ounces), and in the bladder, was detailed in his Bradshaw Lecture in 1901 and was a record of which any surgeon might have been proud.

This brief account of Mr. Jessop's life will suffice to show

that for professional worth and for personal charm he was one of the greatest of the surgeons of which Leeds can justly boast. He was a strong personality, the type of man born to succeed and to rule; robust in thought, decided in action, yet full of gentleness, sympathy, and kindliness. All who met him admired him for his great gifts; those who knew him well loved him well.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Karl Maydl, professor of surgery in the Bohemian University of Prague, from apoplexy, in his fifty-first year. He was a most skilful operator and to him are due the operations of implanting the ureters in the rectum in cases of vesical ectopia and of utilising the muscles of the abdomen for the formation of a sphincter in artificial anus.—Dr. de Laskie Miller, professor of midwifery in the Rush Medical College, Chicago.—Dr. W. H. Parish, professor of anatomy in the Woman's Medical College of Pennsylvania.

Medical News.

FOREIGN UNIVERSITY INTELLIGENCE.—*Vienna:* It is probable that Professor Victor v. Hacker of Gratz will be offered the vacant chair of Surgery.—*Zürich:* Dr. Meyer-Wirz has been recognised as *privat-docent* of Midwifery and Gynæcology.

SOCIETY FOR THE STUDY OF INEBRIETY.—Dr. T. N. Kelynack, the honorary secretary of the Society for the Study of Inebriety, has been elected an honorary corresponding member of the American Association for the Study and Cure of Inebriety.

MOTOR-CARS AND A MEDICAL MAN.—At Christchurch, Hampshire, on Sept. 6th, several motor-car drivers were convicted of driving at an excessive speed and were fined accordingly. In one case, which was adjourned, the defendant, a medical practitioner of London, wrote stating that he had never possessed or driven a motor-car in his life and suggested that the offending driver must have given his name and address falsely.

A MEMBER of the London and Counties Medical Protection Society was some time ago arrested by the Japanese police on board ship by mistake for an individual of the same name. As a result of representations made by the society to the Foreign Office the Japanese Government has now decided that, while maintaining that the claim for compensation could not be entertained in accordance with the law of the country, it will grant the complainant as a matter of courtesy the sum of £30 in view of the annoyance and inconvenience to which he has been put.

THE SANITARY INSTITUTE. — A provincial sessional meeting of the Sanitary Institute will be held at the University of Birmingham on Saturday, Sept. 26th, at 11 A.M., when a discussion will take place on Some Practical Considerations in connexion with Modern Methods of Treating Sewage. The discussion will be opened by Dr. A. Bostock Hill and Mr. J. E. Willcox, A.M.I.C.E., and general discussion is invited. The chair will be taken at 11 A.M. by Dr. Alfred Hill. Tickets for the admission of visitors may be had on application to Mr. J. T. Eayrs, M.I.C.E., 39, Corporation-street, Birmingham, who is acting as the local honorary secretary of the meeting, and of Mr. E. White Wallis, the secretary.

NORTH STAFFORDSHIRE JOINT SMALL-POX HOSPITAL.—The quarterly meeting of the board of this hospital was held on Sept. 10th at Hanley. A copy of a letter from the Bagnall parish council which had been sent to the Local Government Board was submitted. This letter stated that there had been an outbreak of small-pox at Bagnall, hitherto free from the disease, which could be distinctly traced to the new hospital. Five cases had been reported. The board schools in consequence had to be closed for a month, people in neighbouring towns refused to purchase the village milk, and former holiday-trippers now kept away. The board has applied to the Local Government Board for permission to borrow £8000 for a permanent building on the site but great opposition is shown by the villagers. Dr. C. H. Phillips, the medical officer, reported that the number of patients admitted to the hospital during the quarter was 60.

THE "MARTINDALE" MEMORIAL.—The "Martindale" Memorial Committee has arranged that the marble bust of the late Mr. William Martindale shall be unveiled and formally presented, together with the die for the Memorial Medal, to the Pharmaceutical Society at the inaugural sessional meeting of the School of Pharmacy on Thursday, Oct. 1st.

THE SALARIES OF MEDICAL OFFICERS OF HEALTH.—In the annual report of the Local Government Board, which has been recently issued, allusion is made to the greater activity in sanitary matters in Falmouth than was previously the case; but the town council is reminded that the present salary of the medical officer of health, which is only £60 per annum, is scarcely sufficient to enable that gentleman to devote the amount of time which is necessary for the performance of the important duties of his office.

ANCIENT REMAINS NEAR DORCHESTER.—Under the direction of Mr. St. George Gray, curator of the Taunton Museum, some ancient British barrows have been opened at Martinstown, near Dorchester. In one small barrow was discovered a quantity of pottery and human remains, including a perfect skeleton, the latter being the primary interment. In a larger barrow a large British urn was found; this covered cremated remains which were wrapped in some material of cloth or rushes the texture of which is still traceable. A great number of worked flints were also discovered. Mr. Gray puts the age of the remains at approximately 1500 B.C.

CRIME DUE TO INEBRIETY.—At the Central Criminal Court a prisoner, after the commission of an indictable offence through drunkenness, has been tried and sentenced under the Inebriates Act upon a second indictment charging her with habitual drunkenness. This is the first time the situation has occurred. The accused, a married woman, pleaded guilty to neglecting her three children in a manner likely to cause them unnecessary suffering, and having afterwards been found guilty upon the indictment under the Inebriates Act was ordered to be detained for two years in the Southern Counties Inebriates' Reformatory, Lewes.

EXAMINATION OF LUNATICS AT POLICE-COURTS — It is stated that there are 59 places in England where lunatics are examined in the police-courts. In the West of England Bristol, Devonport, and Crediton are amongst them. Most medical men will agree with the Commissioners in Lunacy who urge that the examination and certification of all cases should be done at the homes of the patients. The Commissioners declare that it is highly prejudicial to the recovery of the patients and originates the delusions that crimes have been committed and that seclusion in an asylum is the punishment. Certainly, any practitioner who has had cases in the towns referred to will bear witness to the objection the relatives of the lunatics have to their being taken to the police-court.

PHYSICAL DEGENERATION AND THE POVERTY LINE.—Mrs. Helen Bosanquet read a paper on this subject at the British Association meeting on Monday last. She said that alarming statements had been made as to the extent and cause of physical degeneration. It was generally assumed that one-third of the population was too poor to maintain itself in physical efficiency and it was supposed that this assumption was justified by the investigations of Mr. Booth and Mr. Rowntree. Mrs. Bosanquet pointed out, however, that their figures only applied to London and York and that there appeared to be a great discrepancy between them. The figures of Mr. Booth infer that people with incomes at the rate of 21*s.* or less for a moderate family numbered 30 per cent. of the population, whilst Mr. Rowntree's figures would show that people with incomes at the rate of 21*s.* 8*d.* or less for a moderate family numbered 9·91 per cent. of the population. Mr. Rowntree, however, brought up his numbers classed below the poverty line to 27·84 per cent. by adding 17·93 per cent. who are living in apparent poverty, although their incomes are sufficient to raise them above it. Mrs. Bosanquet added that it seemed probable that Mr. Booth's 30 per cent. also included a large majority whose condition was not due to want of money. With reference to physical degeneration she stated that the evidence from recruiting statistics was hardly enough to prove degeneration from any standard previously attained,

considering the abnormal circumstances in which recruiting had recently been carried on, while much of the evidence of the Scottish Commission went to show a decided improvement. Nevertheless, many children never attained their proper development. These were mainly the children of the apparently poor who were too ignorant or too careless to nurture them properly. Mrs. Bosanquet was of opinion that the evil could not be met by subsidising the parents' earnings or by school feeding, but only by educating women in their duties as wives and mothers, and meanwhile by dealing with neglected children individually. Mr. Henry Southall agreed that it was improper expenditure rather than poverty that had to be combated. Mr. A. L. Bowley said that Mr. Rowntree's and Mr. Booth's research did not touch districts characteristic of the agricultural or manufacturing population.

LOCAL AUTHORITIES AND POLLUTED SHELL-FISH.—Dr. H. Williams, the medical officer of health of the Port of London, in his report to the Port Sanitary Committee states that last December the sale of cockles from Leigh-on-Sea was prohibited by the Fishmongers' Company in the London market owing to their pollution by sewage effluent after being relaid in Leigh Creek, but this restriction was withdrawn on the understanding that the cockles should be brought straight from the gathering grounds and boiled for not less than three and a half minutes. Relaying, however, had been continued, and Dr. Williams thought it was essential that local authorities should have powers to prevent the collection of sewage-polluted shell-fish which affected the health of a large number of persons.

THE NEWTON ABBOT (DEVON) ISOLATION HOSPITAL.—The new isolation hospital erected by the Newton Abbot joint hospital committee has been just opened for the reception of patients. The hospital has been built at a cost of £3560 and will be used solely for cases of enteric fever. It contains two wards, each of which has beds for four male and female patients respectively. The administrative block, in compliance with the requirements of the Local Government Board, will provide accommodation for five nurses. At the rear of the building is an iron hospital which, at first intended for small-pox patients, is to be used for cases of diphtheria and scarlet fever. In the two hospitals beds are provided for 20 patients, but in an emergency the number could be increased to 30. Near the entrance gates and in other parts of the grounds are the mortuary, laundry, disinfecting chamber, and washhouses.

BOOKS, ETC., RECEIVED.

APPLETON, D., AND CO., New York and London.
A Treatise on Diseases of the Rectum, Anus, and Sigmoid Flexure. By Joseph M. Matthews, M.D., LL.D., President of the American Medical Association, 1898. Third edition, revised. Price 21s. net.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent-garden, W.C.
The Practical Details of Cataract Extraction. By H. Herbert, F.R.C.S. Eng., Major I.M.S., Professor of Ophthalmic Medicine and Surgery, Grant Medical College. Second edition. Price 4s. net.

CHURCHILL, J. & A., 7, Great Marlborough-street, W.
Surgery: its Theory and Practice. By William Johnson Walsham, F.R.C.S. Eng., M.B., C.M. Aberd. Eighth edition. Illustrations by Walter George Spencer, M.S., M.B. Lond., F.R.C.S. Eng. Price 18s. net.
A Simple Method of Water Analysis. Especially designed for the use of Medical Officers of Health. By John C. Thresh, M.D. Vict., D.Sc. Lond., D.P.H. Camb. Fourth edition. Price 2s. 6d.

FISCHER, GUSTAV, Jena.
Der Basalzellenkrebs. Von Dr. E. Krompecher, Privatdozent für pathologische Histologie und Bakteriologie und Adjunkt am pathologisch-anatomischen Institute No. II. der königl ung. Universität zu Budapest. Price M.20.

HARRISON AND SONS, St. Martin's-lane, W.C.
England's Future. By W. Culver James, M.D. Third edition, Price 5d.

HIRSCHWALD, AUGUST, Unter den Linden, 68, Berlin, N.W.
Vaginale und Abdominale Operationen. Von Dr. Karl Abel in Berlin. Price M. 6.

HODDER AND STOUGHTON, 27, Paternoster-row, E.C.
The Story of My Life. By Helen Keller. With a supplementary account by John Albert Macy. Price 7s. 6d.

LEWIS, H. K., 136, Gower-street, W.C.
Cancer and Precancerous Changes: their Origin and Treatment. By G. H. Fink, M.R.C.S., L.S.A. Lond., Major, Indian Medical Service (retired). Price not stated.
A Practical Text-book of the Diseases of Women. By Arthur H. N. Lewers, M.D. Lond., F.R.C.P. Lond., Senior Obstetric Physician to the London Hospital and Lecturer on Midwifery in the London Hospital Medical School. Sixth edition. Price 10s. 6d.

OBSTETRICAL SOCIETY OF LONDON, 20, Hanover-square, W.
Transactions of the Obstetrical Society of London. Vol. XLV. For the year 1903. Part II., for March, April, and May. Edited by Amand Routh, M.D., Senior Secretary, and Herbert R. Spencer, M.D. Price 5s.

PENTLAND, YOUNG J., Edinburgh and London.
Manual of Practical Anatomy. By D. J. Cunningham, M.D. Edin. & Dubl., D.Sc., LL.D., D.C.L. Oxon., F.R.S., Professor of Anatomy in the University of Edinburgh. Volume second. Thorax; Head and Neck. Third edition. Price not stated.

RUDEVAL, F. R. DE, 4, Rue Antoine Dubois, Paris.
De l'Hospitalisation d'Urgence en Temps de Guerre. Par le Dr. Ferrier. Price 3 francs.

SWAN SONNENSCHEIN AND CO., LIMITED, Paternoster-square, E.C.
The Wonderful Century. New edition. By Alfred Russel Wallace. Price 7s. 6d. net.

THE MACMILLAN COMPANY, New York (MACMILLAN AND CO., LIMITED, London.
Studies in Physiology, Anatomy, and Hygiene. By James Edward Peabody, A.M., Instructor in Biology in the Morris High School, New York City. Price 5s.

VOGEL, F. C. W., Leipsic.
Archiv für Experimentelle Pathologie und Pharmakologie. Redigirt von Dr. B. Naunyn und Dr. O. Schmiedeberg in Strassburg i.E. 50 Band, 1 u. 2 Heft. Ausgegeben am 3 September, 1903. Preis eines Bandes M. 16.

WHITTAKER AND CO., 2, White Hart-street, Paternoster-square, E.C.
University College, Bristol. Calendar for the Session, 1903-1904. Price not stated.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BAWDEN, J. B., M.D. Edin., has been appointed Certifying Surgeon under the Factory Act for the Kidwelly District of the County of Carmarthen.

BRYDON, JOHN, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed House Surgeon at the Hartlepools Hospital, Hartlepool.

CONDON, F. W., L.R.C.P., F.R.C.S. Irel., has been appointed Certifying Surgeon under the Factory Act for the Ballyshannon District of the Counties of Donegal and Fermanagh.

FITZ-HENRY, R. S. W., M.R.C.S. Eng., has been appointed House Surgeon to the Dewsbury and District General Infirmary, Dewsbury, Yorks.

HENCHLEY, A. R., M.D., has been appointed a Clinical Assistant at the Chelsea Hospital for Women.

HOUSELY, JOHN, M.D. St. And., has been appointed Medical Officer of Health of the Retford District Council.

KENNEDY, A. DINGWALL, M.B., Ch.B. Glasg., has been appointed, *pro tem.*, Medical Officer to the Ballachulish Quarrymen's Medical Club and Friendly Societies.

KNIGHT, WILFRED E., M.B., L.R.C.P. Edin., has been appointed Senior House Surgeon to the West Ham and East London Hospital.

LIGHT, L. W., L.R.C.P. Lond., M.R.C.S. Eng., has been appointed Medical Officer of the Bradwell District of the Maldon (Surrey) Union.

MORGAN, C. HOWARD, M.R.C.S., L.R.C.P., has been appointed a Clinical Assistant at the Chelsea Hospital for Women.

NESFIELD, R. W., M.B., Ch.B. Vict., has been appointed Medical Officer of the Cumberworth Division of the Huddersfield Union.

ROBERTSON, A., M.D., D.P.H., has been appointed a Clinical Assistant at the Chelsea Hospital for Women.

SELLS, C. J., L.R.C.P. Lond., M.R.C.S. Eng., has been appointed Medical Officer of the "Scattered Homes" of the Guildford Union.

THOM, R. B., M.B., Ch.B. Glasg., has been appointed Certifying Surgeon under the Factory Act for the Linlithgow District of the County of Linlithgow.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ABERYSTWYTH, THE INFIRMARY.—House Surgeon. Salary £150 per annum, with board and residence.

BLACKBURN AND EAST LANCASHIRE INFIRMARY.—Junior House Surgeon. Salary £70 per annum, with board, washing, &c.

BRADFORD POOR-LAW UNION (SANATORIUM FOR CONSUMPTIVES), Eastby, near Skipton.—Resident Medical Officer. Salary £100, with rations, apartments, and washing.

BURTON-ON-TRENT INFIRMARY.—House Surgeon. Salary £120, rising to £140 per annum, with rooms, board, coal, and light free.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria-park, E.—Physician to Out-patients.

ECCLES AND PATRICROFT HOSPITAL.—House Surgeon, unmarried. Salary £70 per annum, with board and washing.

GLASGOW EYE INFIRMARY.—Resident Assistant House Surgeon. Salary £75, with apartments and board.

HITCHIN, THREE COUNTIES ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £150 a year, with board, lodging, and washing.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physicians for six months. Honorarium of £25.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.—Radiographer.

KILDONAN AND LOTH JOINT PARISH COUNCILS.—Medical Officer. Salary £93.

LANCASHIRE COUNTY ASYLUM, Winwick, Warrington.—Assistant Medical Officer, unmarried. Salary £150 per annum, with prospect of increase, with apartments, board, attendance, and washing.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Medical Officer. Salary £180 per annum.

ST. GILES'S (CAMBERWELL) WORKHOUSE, Gordon-road, Peckham.—Assistant Medical Officer. Salary at rate of £120 per annum, with apartments and allowance in lieu of board and washing.

SALOP INFIRMARY.—Assistant House Surgeon, for six months. Salary at rate of £50 per annum, with board and apartments.

SAMARITAN FREE HOSPITAL, Marylebone-road, N.W.—Clinical Assistants.

SEAMEN'S HOSPITAL SOCIETY, Greenwich, S.E.—House Physician for the "Dreadnought" Hospital, Greenwich. Salary £65 per annum, with board, residence, and washing. Also Junior Resident Medical Officer. Salary £40 per annum, with board, residence, and washing. Also House Surgeon for the Branch Hospital, Royal Victoria and Albert Docks, E. Salary £50 per annum, with board, residence, and washing.

SOUTHAMPTON INCORPORATION WORKHOUSE INFIRMARY, Shirley Warren.—Resident Assistant Medical Officer.—Salary £120 per annum, increasing to £150, with apartments, rations, washing, and attendance.

SOUTHWARK UNION INFIRMARY, East Dulwich-grove, S.E.—Assistant Medical Superintendent. Salary £150 per annum, increasing to £160, with apartments, board, and washing.

STROUD GENERAL HOSPITAL.—House Surgeon. Salary £80 per annum, with board, lodging, and washing.

SURREY DISPENSARY, Southwark, S.E.—Resident Medical Officer. Salary £140 per annum, rising to £150, with apartments, coals, gas, and attendance.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Surgeon for six months. Honorarium of £25, and board and lodging.

WEST HERTS INFIRMARY, Hemel Hempstead.—House Surgeon, unmarried. Salary £100 per annum, with rooms, board, fire, lights, attendance, and washing.

YORK DISPENSARY.—Resident Medical Officer, unmarried. Salary £120 a year, with board, lodging, and attendance.

Births, Marriages, and Deaths.

BIRTHS.

FRYER.—On Sept. 5th, at Kildare, Brockhurst, Gosport, the wife of H. E. Fryer, Surgeon R.N., of a daughter.

GREEN.—On Sept. 6th, at Broad-street, Ludlow, to Dr. and Mrs. Edward Green, a daughter.

SELLORS.—On Sept. 11th, at Strabane, Emmanuel-road, Balham, the wife of T. B. Sellors, L.R.C.S. Irel., of a daughter.

UPWARD.—On Sept. 9th, at Edfou, Kingston-road, Romford, the wife of Harold Upward, M.B., M.R.C.S., of a son.

MARRIAGES.

CHURCHWARD—MUNDY.—On Sept. 5th, at Christ Church, St. Leonards-on-Sea, Albert Churchward, M.D., M.R.C.P., M.R.C.S., to Janie Elizabeth Marie, daughter of Henry Mundy.

MCCLINTOCK—IRVINE.—On Sept. 16th, 1903, at Great James-street Church, Londonderry, by the Rev. J. Canac, assisted by the Rev. J. Thompson and the Rev. J. D. Cakey, Lawson Tait McClintock, M.B., Ch.B., of Loddon, Norfolk, younger son of the late Dr. J. R. McClintock of the Grove House, Church Stretton, Salop, to Louise Maud, second daughter of the late Rev. S. Irvine, of Greenbank, Londonderry.

MACMILLAN—WALTER.—On Sept. 9th, at St. Peter's, Stanley-gardens, Charles Clarke Macmillan, Surgeon R.N., to Catherine Marie Campbell, daughter of the Rev. J. Conway Walter.

OLVER—SQUIRE.—On August 18th, at Holy Trinity Church, St. Austell, R. S. Olver, M.R.C.S., L.R.C.P., to Georgina Rose Wynter, only daughter of the late Lovell Squire, of Falmouth and San Francisco, and Mrs. Squire, of St. Austell.

DEATHS.

DODD.—On Sept. 9th, at St. Thomas's-place, Newcastle-on-Tyne, Thomas Anthony Dodd, L.R.C.P. Edin., M.R.C.S. Eng.

KIBBLER.—On Sept. 10th, at Ashby House, Manor-road, Stamford Hill, and of Mordaunt House, Hackney, William Ambrose Kibbler, M.B., aged 55 years.

MAILLARD.—On Sept. 10th, at Crete, Richmond Wood-road, Bournemouth, Staff-Surgeon W. J. Maillard, V.C., R.N. (retired), aged 40 years.

PILLOW.—On August 31st, Henry Pillow, M.D. R.U.I., of 41, Merton Hall-road, Wimbledon (late 1, Pembridge-gardens, W.), aged 42 years.

SUMPTER.—On Sept. 7th, at Cley-next-the-Sea, Norfolk, Walter Sumpter, M.D., in his 70th year.

WHITE.—On August 31st, in Egypt, Arthur Thomas White, M.R.C.S., L.R.C.P., Inspector Sanitary Department, Ministry of Interior Cairo, from diphtheria, aged 31 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

A QUESTION OF HOSPITAL DISCIPLINE.

WE recently received a communication from Mr. E. C. Hadley, late resident medical officer at the Guest Hospital, Dudley, and Dr. C. Rolleston, late assistant house surgeon at the same institution, explaining the circumstances in which they had considered it to be their duty to vacate their posts. The circumstances, as stated by these gentlemen, who have asked us to express an opinion upon their conduct in the matter, were as follows. A patient was admitted to the Guest Hospital, Dudley, with a fracture of the tibia and fibula, the severe crushing of the skin and soft tissues leading to slough. He was a refractory patient and removed his splints repeatedly. He was then told that he would have to leave the hospital unless he conformed to the rules. He submitted to authority and was allowed to stay, the circumstances being reported to Mr. M. A. Messiter, the senior surgeon to the hospital. On another occasion the authority of the nurses had to be upheld in the same manner. The fracture progressed unfavourably and at last it became necessary to amputate the limb. During convalescence the patient again became insubordinate, appearing to have considered that some neglect on the part of the resident medical officer had conduced to the necessity of amputation. Then he refused to have the dressings placed on him by one of the nurses and finally decided that he would leave the hospital. But when his sister came with a conveyance to remove him from the hospital he took off his clothes, went to bed, removed the dressings from his stump, and refused to get up. He was carried to the cab in blankets, being very violent and abusive, and was removed to his home with the full consent, we are informed, of the secretary of the institution. On the same day the patient's sister called upon Mr. Messiter, informed him of her brother's expulsion from the hospital, and asked him to visit the patient. Mr. Messiter telephoned to the hospital for an explanation of the circumstances and on learning them is stated to have acknowledged that everything done had been done in accordance with the rules of the hospital. The following day the patient saw Mr. Messiter and apologised for his conduct, with the result that Mr. Messiter telephoned to the hospital that he was to be readmitted, the readmission occurring before the circumstances of the expulsion had been officially reported to the board of management. Whereupon Mr. Hadley and Dr. Rolleston and certain nurses refused to treat the patient. A meeting of the board held three days after the readmission appears to have approved the expulsion of the patient, and Mr. Hadley, Dr. Rolleston, and one of the nurses then said that they should offer immediate resignation unless the patient was removed from the hospital. Mr. Messiter proposed that the resignations should be accepted and that the patient should be removed from the hospital in order that the resident medical officer and assistant house surgeon might be able to continue their duties for the three months' necessary notice of resignation of the senior post. This alternative was refused and Mr. Hadley and Dr. Rolleston and a nurse left the hospital at once. This is the gist of the statement submitted to us by Mr. Hadley and Dr. Rolleston and upon their conduct throughout this most disagreeable episode they invite our opinion.

Before expressing any opinion it will be well to consider a communication which we received from Mr. Messiter, as a result of an invitation to tell us the story from his point of view, for he obviously was at variance with the resident medical officer and the assistant house surgeon. Mr. Messiter's statement began by substantially confirming that of Mr. Hadley and Dr. Rolleston, on the assumption that we had received from them a slightly different document from the one which had reached us. The differences in point of fact amounted to nothing, Mr. Messiter merely suggesting corrections upon two points of omission which, as a matter of fact, did not exist in the statement of his juniors. It was not suggested by them that the insubordination of the patient was reported to Mr. Messiter more than once, and it was not stated that Mr. Messiter had been informed of the patient's discharge before the patient's sister called at his house. For the rest Mr. Messiter's statement of the occurrences tallies with that of Mr. Hadley and Dr. Rolleston. Mr. Messiter, however, has given us fully his reasons for readmitting the patient. Firstly, the patient apologised in the fullest and humblest manner for past misconduct and vowed to sin no more. Secondly, the stump had dead bone in it and urgently required treatment which it was not receiving. Thirdly, Mr. Messiter was not aware that the man had been insubordinate upon repeated occasions. Fourthly, Mr. Messiter saw Mr. Hadley between the time of the expulsion of the man and his readmission and Mr. Hadley did not signify to him that the resident staff had such a pronounced feeling against the readmission of the patient that, if the patient came into the institution again, they should go. The fact of the readmission was mentioned between them and, says Mr. Messiter, "Mr. Hadley seemed quite satisfied." Mr. Messiter does not conceal the fact that there had been differences of opinion between him and Mr. Hadley. Fifthly, Mr. Messiter felt that, over and above compassion for a sick man, there was the reputation of the hospital to be thought of. He points out that when the

patient had refused at the last moment to leave the hospital he was taken from the institution wrapped in blankets, and such episodes, of course, do not conduce to the popularity of a charitable institution. Mr. Messiter also asks our opinion on the situation, pointing out that Mr. Hadley and Dr. Rolleston left their posts suddenly without consideration for the patients, a situation which he considers unprecedented.

Such are the two stories, and in the main facts it will be seen that they agree. The readmission of the patient was an obvious blow to the authority of the resident staff; and all who have held hospital appointments know how very seriously such a blow may affect hospital administration. On the other hand, Mr. Messiter, as senior surgeon, considered himself bound to readmit the patient on the grounds of humanity to the sick as well as of expediency in the interests of the institution, particularly as he was not informed of the extent to which the patient's insubordination had been carried. Now, who is right? We have come to the conclusion that Mr. Hadley and Dr. Rolleston were not justified in leaving the hospital in the manner adopted by them. We have every sympathy with them. We feel that they were placed in a very difficult situation in having to minister to the wants of a man who had repeatedly abused and defied them, and who was able to laugh at any further suggestion that if he did not behave himself he would be removed from the building. They were absolutely justified in refusing to treat such a patient, if the refusal did not imply inhumanity or insubordination, and we do not think that either would have been implied. But their proper course was to place upon their superior officer the onus of making the decision for them. They should have told Mr. Messiter the extent of the mischief which the presence of the patient might do, having regard to his persistent insolence and insubordination, and they should have left to the medical staff the honour and pleasure of defending them. The position in which they found themselves was one in which they had a right to expect hearty cooperation from the medical staff of the institution, who might, we think, have found a fairer method of dealing with the situation than that indicated in Mr. Messiter's proposition for the acceptance of the resignations. Mr. Hadley and Dr. Rolleston should not have gone away from the hospital until they knew that adequate care had been provided for the inmates.

SANITATION AND BUNGALOWS.

To the Editors of THE LANCET.

SIRS,—I am sure that you will allow me to say a few further words in reference to the above subject. Your correspondent, who still refuses to reveal his identity, in THE LANCET of Sept. 12th, p. 799, makes the statement that "ladies and children"—men he apparently thinks capable of facing the horrors—"cannot go on the beach at any time, except, perhaps, during high tide in the afternoon or evening, without constant risk of being disgusted." Of course, so much depends on the temperament of the individual; for instance, many people cannot walk the streets morning or evening without "constant risk of being disgusted," but interpreting your correspondent's remarks as he evidently intends they should be, I maintain them to be an absolute mis-statement of fact and the "masses of floating excrement" a figment of his imagination, and my assertion is borne out by the opinion of the residents on the foreshore, several of whom belong to the medical fraternity, who are naturally indignant at the sweeping statements of your correspondent. I further maintain that, taking a sensible and practical view of the matter, bungalow sanitation on Lancing foreshore is efficient and the record of Bungalow Town has proved it to be healthy in every sense of the word.

I think your correspondent's attention might be much more wisely called to the state of some of our country villages the sanitary arrangements of which compare very unfavourably with those of our little community. There is one particular matter I should like to point out in reference to the grave charges made by your correspondent and that is that I was unanimously elected by the owners of bungalows, at a special meeting held by them, as sanitary manager, and therefore all complaints by tenants are made to me and I am thus able at once to deal with any evil that has occurred and to rectify it if possible. When a person like your correspondent rushes into print before seeing whether there is any possibility of what he thinks a nuisance being put right he is not giving those who have the responsibility of the health of Bungalow Town a fair chance. This is also distinctly the opinion of the sanitary authority of the district, which having recently received a complaint from a gentleman, whose identity is not difficult to guess, has referred that gentleman to me personally, but up to the present I have received no communication from him.

I am, Sirs, yours faithfully,
WM. SWALES.

PATENT PIPES.

FROM time to time new arrangements in tobacco pipes are brought out with a view to the prevention of moisture or other undesirable products of combustion getting into the mouth. For ourselves we are rather of opinion that if a smoker cannot smoke an ordinary pipe he should not smoke a pipe at all. Very little trouble will keep an ordinary pipe clean. But we have lately had submitted to us two varieties of pipes which certainly do keep the tobacco dry and in which the trouble of cleaning is reduced to a minimum. The first and most complicated is called the Williamson Patent Pipe. By a simple arrangement the stem is provided with a woollen string which is wound off a little reel carried in the stem. The wool absorbs moistures, oils, and the like, and at the end of each smoking is drawn out and the soiled portion cut off. This pipe is thus always supplied with clean wool and when the reel is exhausted it can be easily replaced. The other pipe, supplied by the Pumice Filter Tobacco Pipe Co., is fitted with a cartridge of pumice which lies in the stem. This cartridge acts like the wool in the first-mentioned pipe. When sodden it can be renewed, or if the smoker is of an economical turn of mind he can call to mind the words of the old song—

> "The pipe that is so foul within
> Is, like man's soul, all black with sin,
> And then the fire
> It doth require—
> Think of this when you smoke tobacco."

If the foul cartridge be heated in a clear fire or over a Bunsen burner it will become white and clean again and can be replaced. Both these pipes act well.

GLYCOSURIA *v.* DIABETES.

To the Editors of THE LANCET.

SIRS,—A patient of mine who has "alimentary diabetes" (by which I mean he has only glycosuria when he takes forbidden articles of food) now wants his insurance money, to which he is entitled by his policy, on the ground that he has diabetes. On the one hand, it may be said that he has no glycosuria now and therefore has not diabetes; on the other hand, it may be replied that glycosuria may be absent in diabetic coma and that to avoid carbohydrates, &c., means a departure from normal health, and this departure from normal health is equivalent to saying that he has diabetes. I should be interested therefore to know whether I am justified in signing the medical certificate that he is "suffering from diabetes." He is not merely a case of "glycosuria," for he has wasting, suspicious signs at one apex, absent knee jerks, and various "neuritic" pains.

I am, Sirs, yours faithfully,
Sept. 15th, 1903. A COUNTRY G. P.

*** We do not think, upon the facts submitted to us, that our correspondent would be justified in signing a certificate to the effect that his patient is suffering from diabetes.—ED. L.

MEDICAL POSTS IN THE MERCANTILE MARINE.

To the Editors of THE LANCET.

SIRS,—In reply to "Medicus" I may state that I wrote making inquiries regarding the appointment of ship surgeons to the Booth S.S. Company. A printed form of application was sent me with a request for particulars of professional experience, the queries on which were in no way unreasonable. A few days after forwarding this I received a courteous written reply from the medical superintendent.

I am, Sirs, yours faithfully,
Sept. 11th, 1903. H. A. L.

To the Editors of THE LANCET.

SIRS,—In reply to the letter of "Medicus" *re* applicants for posts as ship surgeon on Booth Line steamships, is it out of place for me to say that I quite recently applied to the medical superintendent of the line for a post and received from him the utmost kindness and consideration? I sail on one of their boats very shortly. I inclose my card.

I am, Sirs, yours faithfully,
T. B. R.

TWO QUERIES.

To the Editors of THE LANCET.

SIRS,—I should be much obliged if any of your readers could inform me (1) where there is published in English an account of the system of workmen's sick insurance in Germany; and (2) who are the author and publishers of a work bearing the title "Prostitution in all Ages and Countries."

I am, Sirs, yours faithfully,
August 23rd, 1903. AFRICANDER.

Perplexed.—We are not aware of any definite experiences with reference to the effects of spinal cord extract in nervous diseases. Perhaps some of our readers may know of some cases in which the treatment has been tried.

W. B. L.—We have no knowledge of the statements about which our correspondent asks, but if they have been made we are extremely doubtful if there is any truth in them.

W. E. C.—We consider that the practice is one to be condemned, for children with whooping-cough are infectious before the characteristic cough develops.

R. H.—Professor Clifford Allbutt's "System of Medicine" (vol. iv.) and Dr. Saundby's Lectures on Bright's Disease.

P. P. should charge the distances from his new residence.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Sept. 17th, 1903.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks at 9.30 A.M.
Sept. 11	29·41	N.W.	0·51	104	60	47	47	51	Cloudy
,, 12	29·58	W.	...	101	59	44	47	49	Fine
,, 13	29·72	N.	...	96	57	48	48	52	Cloudy
,, 14	30·21	N.N.E	...	87	57	50	47	51	Cloudy
,, 15	30·50	N.E.	...	100	58	45	47	50	Cloudy
,, 16	30·25	N.N.E	...	107	60	47	49	51	Dull
,, 17	30·27	S.E.	...	106	64	47	48	53	Overcast

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (21st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.) Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (22nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.).

WEDNESDAY (23rd).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.) Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M).

THURSDAY (24th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat, (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

FRIDAY (25th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.).

SATURDAY (26th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1903, which was completed with the issue of June 27th, and the Title-page to the Volume, were given in THE LANCET of July 4th.

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VOLUMES for the first half of the year 1903 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

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